DOMESTIC ENGINEERING

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Copy and cuts for advertisements intended for a particular issue should reach the office of DOMESTIC ENGINEERING on Wednesday of the previous week if it is desired that a proof of the advertisement shall be submitted. New advertisements can be received up to noon of Wednesday of the week of issue, but no proof can be shown.

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Suggestion:
Cut out; frame neatly; put in show window; change weekly.

ABOUT THE DITCH.

A curious thing to spend money to advertise,—surely! But if you allow a few cents' worth of consideration to flow through your thought-meter, you will at once see that a man cannot do a good plumbing job unless he knows how to dig a good ditch, straight and true to gradient. Nor would he be a good plumbing contractor unless the ditch be refilled right, so that no pipes are to be carried out of grade or broken. Many defective plumbing jobs are in the first instance bad ditches. In all our excavating operations we use skilled workmen and particular care. The same spirit characterizes all our plumbing, heating and lighting work.

What Kind of a Worker Are You?

Is the conduct of your affairs indefinite? Are you drifting along without a plan or set purpose? Perhaps hoping to make enough money on your next job to pay for the material purchased for your last? This may be an overdrawn set of questions; but is it not in part true of you?

What is your plan? Why are you going to and fro on the face of the earth, busying yourself mightily on the surface of things? What is the underlying reason for your activity? If you consider a few minutes may you not find that practically all your energy is exerted to keep the machine going, with no plan for the goal to be attained?

It's a sad sight to see a ship at sea, moving, to be sure, but moving with wind or tide, but without human direction. We call it a derelict, bound for no harbor, but inexorably destined for the bottom.

Keep from being a derelict in business! Have a destined harbor and make every tack bring you a trifle nearer to it. It can be done by **thought** manifested in intelligent **work.**

* * * *

Work is one of the fundamental relations of life. Men in business are willing to work, as a rule, but all are not alert enough to analyze why or how they work. Our work, so far as it affects others and ourselves, will have a helpful or a hurtful tendency, and this tendency will be exerted in varying degrees. If the influence of our work is helpful it will be so in the degree that our minds are **receptive, productive** or **creative.** If our work is harmful it will be so in the degree that our thinking is **defective, perversive** or **destructive.**

* * * *

The man who is just barely receptive in his thought is industrious. He is proud of the fact that he works. But what would his answer be to these questions?

Do you earn more than your pay? Do you take any interest in the business other than merely doing your own work? Do you have a desire to do your work better than the average workman? Do you look upon your employer or employe as a natural enemy? Are you interested in making a profit for your employer on the work which you are doing? Unless you can say "yes" to these questions, we will have to admit that you are industrious, but **you are not doing any more than earning your wages.**

* * *

There is one step higher you can go and when you reach that point you will see your work as a part of the larger whole. You will study it in its effect upon your employer or employe. You will endeavor to make your part of the general work a useful cog in the great wheel of industry, benefiting all whom it affects. You will do your work as well when you are alone as when being watched. You will have an in-

terest in your work so that it shall be productive. When you can say "yes" to these statements you are a workman in the second grade, and **your efforts are productive.**

* * *

But there is still another rank which you can attain: that of the creative class of workmen, who constantly strive to find cheaper and better ways of doing their work, of doing daily tasks in newer ways, of solving problems. Your work is with you as you journey to and fro and you care for the doing of it successfully rather than for the results of it financially. When you can say "yes" to these questions you are **a creative workman and possess the spirit of invention.**

* * *

The reverse side of the shield is not so pleasant to look upon, and instead of progressing upwards as we change from one degree of work to another we are going downwards. The first step in this scale **is defective work.** The man who does just as little as he can and shirks when the boss is out of sight, shifts his burdens upon other people and seeks every opportunity to live without labor; eats the food other people have prepared, sleeps in beds others have made; lives in houses others have built; warms himself by coal others have taken from the mine; and in return for all of these gifts to him he **gives nothing to other workmen.** This grade of workman is in the first step of the descending line, **the defective workman.**

* * *

He could do worse. He could sell articles for one grade and cause them to be made of another grade; he could dispose of property for fictitious values; he could get possession of a business and wreck it in order to benefit another business; he could operate his own interests in a business to the detriment of his own associates; he could gamble and speculate where he himself would gain and where all others would lose. This is the dishonest workman who stands in the rank of **the perversive, one step lower than the defective workman.**

* * *

There is yet one step lower than this which the workman can occupy. He can destroy businesses, he can tear out plumbing because it is put in by non-union workmen; he can make work last an unnecessarily long time; he can burn houses, destroy legitimate industries, **kill off competition,** use political pulls, discriminate unfairly, unnecessarily waste material. This is **the destructive workman,** who has reached the lowest possible niche in the order. **The world is poorer because of his presence in it.**

* * *

So far this editorial has followed closely the analysis of "Self" as portrayed by Professor William DeWitt Hyde, president of Bowdoin College, of Brunswick, Maine. I have rewritten it to apply to our readers, to whom I have addressed it with the hope that all of the questions to the first group, the better grades of workmen, those who are **receptive, productive and creative,** can be answered in the affirmative, and that those in the lower grades of workman, **defective, perversive and destructive** can be answered in the negative. If any are partly one and partly the other **the lower grades can be eliminated and the upper grades** cultivated until you will **stand above the dividing line entirely,** rather than partly below and partly above. If you are in the receptive class of workmen you can **advance to the productive and creative classes,** and until you have done so your work will not be complete. When you have accomplished this improvement **you can look any man in the eye and command his approval.**

Jno. K. Allen.

Gas Specialties, as Applied to the Plumbing Business

By Chas. B. Starkey.

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One line of specialties that is shamefully neglected by the master plumbers is the various appliances for the use of both natural and artificial gas. Many shops will do the piping work, but the gas company, or other parties, generally sell the goods. This should not be so, and the falling off of this line of trade for the plumbing and heating shops is due almost entirely to their own indifference and negligence in not going after a profitable branch of business.

A Convincing Demonstration.

One of the most convincing arguments I ever witnessed in respect to this business was a window demonstration in a city located north of Mason and Dixon's line some few months ago. As I was passing along the street I saw a crowd gathered in front of a brilliantly lighted front window in a plumbing shop located upon one of the principal streets. I succeeded, after a while, in pushing up to the front of the crowd, and then observed the cause of interest in the show window. Two gas meters had been installed and each was connected with a different type of gas burner used for the purpose of illumination. One was the ordinary jet, and the other was a special type well known to many users of gas.

Now it was easy enough to see that **the special type of burner furnished more light, but what drew the eyes and held the attention of the crowd, was the different speed at which the indicators upon the meters moved.**

The indicator upon the **ordinary type traveled at least four times as fast** as did the indicator upon the special type of burner.

This fact spoke for itself louder and more eloquently than words. Really here was a place where

"silence was golden," and I will venture to state that that particular advertising stunt paid a large return upon the outlay. Now this scheme is not new, it did not take a statesman nor philosopher to conceive the idea, yet it is not worked to a great extent in our large towns. I wonder why?

The Gas Business Specialized.

As an evidence of what may be accomplished along this gas business line, I wish to relate an instance that came under my observation some moons since.

A young man started out in the business, and upon looking about him he saw few jobs but many engaged in nailing the contracts. So he decided to go at it along a little different line.

He specialized on gas, became an expert, and finally confined his whole time, force and money to that branch of the craft.

He took over from the gas company the business of getting new consumers, for their product, and attended to the whole shooting match himself. **They furnished the gas; he put in the work,** and became a special contractor. When he began he was his own boss, and had no helper, hired no journeymen, and when I last heard of this hustler he was employing **fifty journeymen and rose to this point in about three years' time.** Now I wonder if it paid to crowd that specialty, or would it have been better to have stuck to the rut and perhaps given up in despair, for this was accomplished partly during our recent financial depression.

This is only another instance of what **can be done** in the plumbing business by **energy, wit, and business methods correctly applied.**

Specialties that May Be Pushed.

These apply to illumination, heating, cooking and special heaters for heating water for the residence, and there are many first class articles upon the market which are worthy of much more attention from the shop than they now receive.

Why should not the plumbing shop sell these appliances and make a profit? Why should not the shop dig up a few customers for these articles now and then and **not wait for the manufacturer** to come and tell the shop where to install the goods, in order to avoid being **IRREGULAR.**

Gas Heating Apparatus.

The illumination part of the problem hardly needs consideration from this point of view. What I do wish to dwell upon is the apparatus used for furnishing heat by gas.

There is, in our northern climate, a period varying from six to ten weeks, according to the latitude of the town or city, in the heating season of each year, when it is a nuisance and a needless additional expense to run the steam heating or hot water apparatus.

An hours' heat in the morning, and perhaps two hours' heat in the evening, are all that are necessary to take the chill off the house. Yet this is done by using coal or wood in the boiler at quite an expense, and also the consumer's time, unless the fire is kept, banked, during the day, and the apparatus, of course, burns additional fuel at a time when it is not needed.

Now this can be avoided by the use of portable gas stoves or fire places, by which the heat can be generated instantly and the room or rooms sufficiently warmed in a very short space of time. The heat is turned off **(expense stopping instantly)** when the rooms are sufficiently warmed.

Many of these appliances are constructed to burn either with or without a flue. Objections have been raised that these appliances are dangerous, cause headaches, etc.

A properly constructed gas stove or grate will not foul the air in the room and should be no more dangerous than any gas piping in the residence. Another article that can be installed by the shop with good profit is the gas range for use in residences, restaurants and hotels. No one knows the convenience, cheapness and cleanliness of cooking by gas until they have tried it and been self convinced.

The Cost Comparison.

A good and reliable gas range costs less than a coal range, occupies less space, is easier to keep clean and in order. It operates, also, at a much less expense per day. With gas at 85 cents per 1,000, during past year the writer's gas bill for heating water for the bath, and for running the kitchen range for doing all the baking, ironing, washing and three meals per day for family of three, this gas bill has averaged $1.60 to $1.70 a month, and I am satisfied that no coal range could have done the same work for less than $3.50 to $4.00 per month.

Another profitable specialty in the gas business (and directly connected with the installation of plumbing), are the gas heaters used to heat range boilers, or to furnish hot water directly for the bath, the water being heated very rapidly as it passes through the special heater. The appliances are easily connected and furnish water within a few minutes for a very small sum of money. The fuel

expense can be stopped instantly as soon as enough hot water has been obtained. There you have it—utility, convenience, small expense. When these inventions first appeared we used to hear all sorts of stories about explosions, and I will state right here, that I never knew of but one, and that came from a split gas pipe in the supply which in some unaccountable manner opened up. It was not at all the fault of the heater.

The reason why more of these heaters are not sold by the shops is because the people who are running the shop do not know how properly to connect these heaters to the plumbing job.

Glance over the pages of any trade paper which has a question and answer department and observe in the course of a month or two the many questions asked relatively to the installation of hot water gas heaters, and you will be convinced of the truth of my assertion. **There is more easy money, with less work and risk in a good line of specialties for the average shop,** than exists in bucking the line and trying to put your competitor out of the business. Try it and be convinced.

An Analysis of the Plumbing Codes of Thirty-five of the Principal Cities in the United States*

By Thomas S. Ainge, Sanitary Engineer, Michigan Department of Health.

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Main Soil and Waste Pipes.

The specifications relative to main soil and waste pipes are shown in Exhibit VII.

Materials.—For main soil and waste pipes, in good work, it is customary to use either brass, extra heavy cast iron, wrought iron, or steel, and, in a majority of the thirty-five codes, one or more of these materials is specified. Extra heavy cast iron seems to have the preference over other materials, it being specified in twenty-four codes. Wrought iron (usually required to be galvanized) seems to be the second choice, it being specified in fifteen codes. "Cast iron" is specified in four codes, "Iron" in three codes, "Sound iron" in two codes, "Plain soil pipe" in one code, and "Good soil pipe" in one code. It is probable that extra heavy cast iron is

*The first two installments in this series of articles were published in the issues of May 29, September 18, and October 9, 1909. These back numbers can be obtained for 10 cents a copy.

EXHIBIT VII

CITY.	Materials.	SIZES. SOIL.
Allegheny, Pa.....	Extra heavy cast iron.	1 to 4 close pipe. 4 to 8 close pipe.
Baltimore, Md.....	Up to 40′ in height, extra heavy cast iron; above 40′ in height, "standard" pipe may be used.	Not less than
Boston, Mass.....	Extra heavy cast iron, galvanized wrought iron or brass.	4", but under conditions be used closet.
Buffalo, N. Y.....	Extra heavy cast iron or lead.	Minimum 4".
Chicago, Ill.....	Extra heavy cast iron or galvanized wrought iron.	Minimum 4".
Cincinnati, O.....	Cast iron, lead, copper, brass.	Minimum 3".
Columbus, O.....	Iron, brass or copper. Cast iron not to be used for more than five floors.	(See footnote)
Denver, Colo.....	Extra heavy cast iron.	Minimum 4".
Detroit, Mich.....	Lead, steel, cast or wrought iron.	Minimum 4".
Fall River, Mass....	"Sound iron."	Not specified.
Indianapolis, Ind.....	Extra heavy cast iron.	Minimum 4".
Jersey City, N. J.....	Extra heavy cast iron or galvanized wrought iron.	1-9 water clos pipe. 10-19 water 5" pipe. 20 water clos over, 6" pip
Kansas City, Mo.....	Extra heavy cast iron.	Not specified.
Louisville, Ky.....	Under 3 stories in height, "Standard" pipe; 3 stories and over, extra heavy cast iron.	Minimum 4".
Milwaukee, Wis.....	Extra heavy cast iron.	Minimum 4". 4 water clos pipe. 10 water clos pipe. 25 water clos pipe. Over 25 wate ets. 8" pipe.
Minneapolis, Minn....	Extra heavy cast iron. Standard wrought iron may be used under certain conditions.	Minimum 4".
Newark, N. J.....	Extra heavy cast iron.	Minimum 4". water closet or more flo for tenement or factories ceeding 3 5" pipe.
New Haven, Conn...	"Sound iron."	Minimum 4".

—Main soil and waste pipes.

SIZES: WASTE.	SUPPORTS.	EXTENSIONS ABOVE ROOF.	Enlargement Before Passing Through Roof.	Accessibility.
8 sinks or basins, 3" pipe; 3 to 7 sinks or laundry tubs, 2" pipe; bath tub or sink, 1½" pipe.	Not specified.	Soil pipe to be 2' above highest window; waste pipe to be at least 1' above coping and well away from windows.	Not specified.	Not specified.
Not specified.	Not specified.	Soil pipe to extend above roof and at least 15' from windows. No specification for waste pipe.	Where trap vents are connected with vertical soil or waste pipes.	Exposed pipes or movable coverings specified.
2", and for kitchen sinks on five or more floors, 3" must be used.	Brick piers, or wall or ceiling supports.	2' above roof and 1' above windows not more than 15' distant, 8' above roof where made use of for any purpose.	Not specified.	Exposed pipes wherever practicable.
For line of kitchen sinks, to be at least 2".	Not specified.	Not less than 10" and not more 2' above roof, and away from all ventilating openings.	Not specified.	Exposed pipes or movable covers.
For kitchen sinks, 2". For wastes of five or more floors, 3". Where no soil pipe is extended above roof, for less than six fixtures, 2", and for more than six fixtures, 2½" pipe.	Stone, brick, or concrete pier at base, and rests at every second floor.	At least 8" above roof, and at certain specified distances from doors, windows, ventilators, or chimneys.	At least 1" greater in diameter, with a minimum of 4".	Not specified.
Two or more kitchen sinks, 2"; other wastes in proportion.	Not specified.	At least 2' above roof, and away from ventilating openings.	Minimum 4".	Not specified.
(See footnote.)	Masonry pier at base, and other rigid supports.	3' above any door, window, scuttle or air shaft which is less than 12' distant.	Not specified.	Not specified.
Bath tub, sink, laundry tub or urinal, 1½"; wash basin, 1¼".	Pipe rest at each floor.	To highest point of main roof, or 6" above ridge of fire wall on flat roofs. 5' above or 20' distant from windows, etc.	Not specified.	Not specified.
Not specified.	Not specified.	At least 2' above roof.	Not specified.	Not specified.
Not specified.	"Ironed to walls."	2' above roof, remote from windows.	Minimum 4".	Not specified.
1 to 2 fixtures, 1¼" pipe. 3 to 4 fixtures, 1½" pipe.	"Ironed to walls."	Not less than 12" above roof, and above and away from windows, etc.	Not specified.	Not specified.
1 to 3 kitchen fixtures, 2" pipe. 4 to 9 kitchen fixtures, 3" pipe. 10 kitchen fixtures and over 4" pipe.	Brick or stone foundation, or pipe rests at each floor.	3' above roof and well away from windows, etc. Above main roof when within 10' of adjoining windows.	To be increased one size.	Exposed pipes or movable covers.
1 fixture, 1¼" pipe. 1 to 3 fixtures, 1½" pipe.	Extra heavy pipe rests, not more than 10' apart.	Not more than 12" above roof, and at least 10' distant from any window, etc.	Not specified.	Not specified.
Wash basin or bath, 1¼"; sink, wash trays, or urinal, 2"; stop hopper, 3".	"Securely fastened to satisfaction of the inspector."	5' above the top of any window, etc., that is within 15' of the extension.	To be increased one size.	Not specified.
1½" pipe for 2 or 3 basins or 1 basin and 1 bath tub. 2" pipe for 1 each of any two of the following: Basin, bath tub, sink, urinal.	Pipe rest at foot of vertical stack, and at every 10, 15, or 20 feet.	2' above highest part of roof or coping and at least 15' away from any window, etc.	Not specified.	Not specified.
1-2 fixtures, 1¼" pipe. 3-6 fixtures, 1½" pipe.	Ironed to walls.	12" above roof and away from windows, etc.	Extension above roof to be encased in a pipe at least 1" greater than soil pipe.	Not specified. Pipes may be run in heated flues.
Minimum 2". For kitchen sinks on 4 or more floors, 3" pipe.	Provision made for supports only when drain is run above cellar floor, then by brick piers or hangers.	Pipes for fixtures above first floor to extend at least 2' above roof coping and 20' away from windows, etc.	For pipes of a less diameter than 4" only.	Exposed pipes or movable covers.
Minimum 2".	Ironed to walls.	Not less than 2' above roof.	Not specified. Minimum for waste pipe 2".	Exposed pipes or movable covers.

EXHIBIT VII.——Main soil and

CITY.	Materials.	SIZES: SOIL.	SIZES: WASTE.	SUPPORTS.
New Orleans, La....	Under 3 stories in height, "Standard" pipe may be used; above that height, "extra heavy."	Minimum 4". 6 to 12 closets, 5" pipes. 13 to 36 closets, 6" pipe.	2 to 8 fixtures, 2" pipe; more than 8 fixtures, 3" pipe.	Masonry pier at foot of stack, and supports on each floor.
New York, N. Y.....	Iron, steel or brass.	Main, 4". For closets on 5 or more floors, 5" pipe.	Main 2". For kitchen sinks on 5 or more floors, 3" pipe.	Brick piers at base.
Omaha, Neb.....	Extra heavy cast iron.	Minimum 4".	No general specifications.	Iron pipe rest or unremovable timber at base, and rests on each floor above 20'.
Paterson, N. J.....	Extra heavy cast iron, galvanized wrought iron, or brass.	Main 4". For closets on 5 or more floors, and for tenement houses or factories exceeding 3 stories, 5" pipe.	Main 2". For kitchen sinks on 4 or more floors, 3" pipe.	Provision made for supports only when drain is run above cellar floor, then by brick piers or pipe hangers.
Philadelphia, Pa	"Plain" cast iron pipe, galvanized lap welded wrought iron, galvanized steel, or brass.	1 to 12 closets, 4" pipe. 13 to 25 closets, 5" pipe. 26 to 40 closets, 6" pipe. 5 to 12 stories, 5" pipe. Over 12 stories, 6" pipe.	1 fixture, 1¼" pipe; 2 fixtures, 1½" pipe; 3to 5 fixtures, 2" pipe; 6 to 9 fixtures, 2½" pipe; 10 to 16 fixtures, 3" pipe; 17 to 25 fixtures, 4" pipe; 26 to 40 fixtures, 5" pipe. 5 to 10 stories, 3" pipe. 11 to 16 stories, 4" pipe. 17 to 21 stories, 5" pipe. Over 21 stories, 6" pipe.	Brick piers or heavy iron hangers.
Pittsburg, Pa.....	Extra heavy cast iron or heavy wrought iron.	1 to 4 closets, 4" pipe. 4 to 8 closets, 6" pipe.	Bath tubs or sinks, 1½" pipe; 3 to 7 sinks or laundry tubs, 2" pipe; 8 sinks or basins, 3" pipe.	Not specified.
Providence, R .I.....	Cast or wrought iron, or steel.	Not specified.	Not specified.	Brick piers or iron hangers.
Rochester, N. Y.....	Cast iron, wrought iron, steel, lead, brass, or copper.	1 to 30 closets, 4" pipe. 30 to 50 closets, 5" pipe. 51 or more closets, 6" pipe.	For bath tubs, basins, laundry tubs, urinals or refrigerators: 1-2 fixtures, 1¼" pipe. 2-6 fixtures, 1½" pipe. 6-26 fixtures, 2" pipe. 26-40 fixtures, 2½" pipe. Over 40 fixtures, 3" pipe. For sinks only: 1 sink, 1¼" or 1½" pipe. 2-10 sinks, 2" pipe. 10-20 sinks, 2½" pipe. Over 20 sinks, 3" pipe.	Not specified.
St. Joseph, Mo.....	"Good soil pipe.	Minimum 4".	Wash basins, 1¼" pipe. Kitchen sinks, laundry tubs or urinals, 1½" pipe. Slop sinks, 2" pipe.	Provision made for supports only when drain is laid above cellar floor, then to be ironed to wall or hung from floor timbers by brick piers or hangers.
St. Louis, Mo.....	Extra heavy cast iron, wrought iron, or lead. Extensions above roof may be of galvanized sheet iron.	Not specified.	Not specified.	Foot rest at bottom of each stack, or ironed to wall or suspended from floor timbers by iron hangers.
St. Paul, Minn.....	Extra heavy cast iron, wrought, iron or brass.	Main 4". For closets on 5 or more floors, 5" pipe.	Main 2". For kitchen sinks on 5 or more floors, 3" pipe.	Brick piers or heavy pipe hangers.
San Francisco, Cal..	Up to the highest fixture, extra heavy cast iron or standard galvanized wrought iron; above that point, "standard" cast iron or galvanized wrought iron may be used.	Minimum 4".	1 basin, 1½" pipe. For 16 or more fixtures, 3" cast iron or 2½" galvanized wrought iron.	Heavy bands, wrought iron straps, or hooks.

te pipes. (Continued)

EXTENSIONS ABOVE ROOF	Enlargement Before Passing Through Roof.	Accessibility.
above roof and well ove and away from ndows, etc.	Not specified.	Not specified.
for fixtures above t floor to extend ve roof at least well away from ndows.	For pipes of less than 4" only.	To be exposed to view wherever possible.
above roof and well ay from windows,	Not specified.	Not specified.
east 2' above roof d 20' away from dows, etc.	For pipes of less than 4" diameter only.	To be exposed to view where possible.
east 2' above roof adjoining property.	Not specified.	Exposed to view wherever practicable, but when this is not practicable, extra heavy pipe must be used.
pipe to be 2' above ghest window. Waste e to be at least 12" ve roof coping and ll away from winows, etc.	Not specified.	Not specified.
high as Inspector ay require.	Not specified.	Not specified.
pipes to be at least above the roofs and ll away from winws, etc. Waste pipes om 2 or more fixres on different ors to be extended ll size above roof, t no height stated.	Soil pipes to be one size larger. No specifications for waste pipes.	Pipes to be so arranged that they may be repaired readily.
pipe to go above e highest roof of ilding, and above d away from winws, etc. No specifiation for waste pipes.	Not specified.	Not specified.
and through roof, d well away from indows, etc.	Not specified.	Pipes not to be covered.
least 1' above highst window in pitched of, and 18" above t roof.	Pipes less than 4" in size to be enlarged to that size.	Not specified.
above roof line and from any opening the house or buildg adjoining.	Not specified.	Pipes to be in reveals or recesses.

intended by most of the foregoing indefinite terms. Materials other than iron, arranged in the order in which they are specified the greatest number of times, are brass, steel and lead.

In six codes, "lighter weight" or "standard" cast iron pipe may be used under certain conditions, presumably on account of the saving in the first cost of materials. Where durability is an object, the wisdom of installing a light weight pipe in any part of the sewerage system of a building is not apparent. In the Baltimore and Toledo codes, lighter weight cast iron pipe may be used above the first forty feet of stack; in the Louisville and New Orleans codes, in buildings not over three stories in height; in the San Francisco code, above the highest fixtures; and in the Minneapolis code, "under certain conditions."

In the Columbus code, cast iron may not be used for more than five floors.

It would be interesting to know the reason which prompted the framers of the St. Louis code to permit the use of galvanized sheet iron for the extensions of soil pipes above the roofs, and it would be still more interesting to learn what is the average life of such extensions, i. e., up to the time they become perforated by corrosion.

Sizes of Soil Pipes.—As previously stated, there is as yet little scientific basis for the determination of the sizes of main soil and waste pipes, and this is believed to be the reason for the lack of uniformity in the several codes relative to the sizes of such pipes. This lack of uniformity is particularly evident in the specifications of the following codes relative to the number of water closets which may be connected with a single stack of soil pipe:

Allegheny, Milwaukee, Pittsburg and Scranton, 1 to 4 closets.

New Orleans, 1 to 5 closets.

Toledo, 1 to 6 closets.

Syracuse, 1 to 8 closets.

Jersey City, 1 to 9 closets.

Philadelphia and Washington, 1 to 12 closets.

Columbus, 1 to 24 closets.

Rochester, 1 to 30 closets.

In four of the codes, the extent to which a four-inch soil pipe may be used is determined by the height of the building; thus, in the codes of Newark, New York, Paterson and St. Paul, a four-inch pipe is specified for closets on four floors or less; and in the codes of Newark and Paterson, a four-inch pipe is specified for factories not exceeding three stories in height.

In recent years, considerable discussion has taken place relative to the minimum diameter for a soil

EXHIBIT VII.——Main soil and

CITY.	Materials.	SIZES: SOIL.	SIZES: WASTE.	SUPPORTS.
Scranton, Pa.....	Extra heavy cast iron or heavy wrought iron.	1 to 4 closets, 4" pipe. 4 to 8 closets, 6" pipe.	Bath tubs or sinks, not less than 1½" pipe; 3 to 7 sinks or laundry tubs, 2" pipe; 8 sinks or drains, 3" pipe.	Pipes to be properly secured.
Syracuse, N. Y.....	Extra heavy cast iron, galvanized wrought iron or steel.	1to 8 closets, 4" pipe. Over 8 closets, 5" pipe.	1 to 6 fixtures, 2" pipe. Over 6 fixtures, 3" pipe.	Masonry piers at bases of stacks, and securely fastened to walls.
Toledo, O.....	In buildings over 40' high, extra heavy iron pipe for first 40', then "lighter weight pipe." In buildings not over 40' high, "lighter weight pipe." Wrought iron or steel may also be used.	6 closets or bath rooms, 4" pipe; 6 to 10 closets or bath rooms, 5" pipe; more than 10 closets or bath rooms, 6" pipe.	2 to 4 kitchen sinks, 2" pipe; 5 or more kitchen sinks, 3" pipe.	Pipe rests.
Washington, D. C....	Iron, lead or brass.	Under certain conditions, 3" pipe may be used for two-story dwellings. 1 to 12 closets, 4" pipe. 13 to 25 closets, 5" pipe. 26 to 40 closets, 6" pipe. Small fixtures not to exceed twice the above number of closets may discharge into these pipes also; but when in excess of this ratio, 4 additional fixtures shall count as one closet.	1 fixture, 1¼" pipe. 2 fixtures, 1½" pipe. 3 to 5 fixtures, 2" pipe. 6 to 9 fixtures, 2½" pipe. 10 to 16 fixtures, 3" pipe.	Not specified.
Worcester, Mass.....	Extra heavy cast iron.	Minimum 4".	2 to 6 fixtures, 2" pipe; 6 or more fixtures, 3" pipe.	Secured to walls by iron hangers.

In the Columbus code the following sizes for soil and waste pipes are given:

Waste Pipe Alone.		Soil Pipe Alone.		Soil and Waste Combined.	
1½ inch pipe	3 fixtures.*	4 inch pipe	24 water closets.	96	fixtures.*
2 inch pipe	20 fixtures.	5 inch pipe	48 water closets.	192	fixtures.
2½ inch pipe	32 fixtures.	6 inch pipe	84 water closets.	336	fixtures.
3 inch pipe	60 fixtures.	7 inch pipe	140 water closets.	560	fixtures.
4 inch pipe	144 fixtures.	8 inch pipe	210 water closets.	840	fixtures.
5 inch pipe	288 fixtures.	9 inch pipe	290 water closets.	1160	fixtures.
6 inch pipe	504 fixtures.	10 inch pipe	400 water closets.	1600	fixtures.
		11 inch pipe	530 water closets.	2120	fixtures.
		12 inch pipe	710 water closets.	2840	fixtures.

*Fixtures with 1¼" or 1½" waste count as one fixture; with 2" waste, two fixtures; with 2½" waste, three fixtures; with 3" waste, four fixtures; with 4" waste, five fixtures.

Main for kitchen sink or more than three other fixtures, not to be less than 2".

*Three feet of urinal trough or wash sink, one bath, basin, sink or smaller counts as one fixture.

One pedestal urinal, slop hopper sink, or water closet counts as two fixtures.

pipe, and the sentiment for a change from the usual four-inch to a three-inch minimum seems to be increasing. In one of the thirty-five codes (Cincinnati), a three-inch minimum is specified; and in two codes (Boston and Washington), three-inch pipe may be used under certain conditions.

In four of the codes, no size is specified for soil pipes, and in view of the present uncertainty relative to the proper sizes of such pipes, the omission is pardonable.

Sizes of Main Waste Pipes.—In view of the fact that the waste pipes in the average building are usually connected with the soil pipes, the specifications in many of the codes relative to the sizes of waste pipes are probably intended to refer to the branch rather than the main pipes. This belief is strengthened by the fact that, in many of the codes, a smaller diameter than the usual minimum (2 inches) for such pipes is specified.

What has already been said relative to the present uncertainty in respect to the proper sizes of soil pipes will apply with equal force to the main waste

te pipes. (Concluded)

EXTENSIONS ABOVE ROOF	Enlargement Before Passing Through Roof.	Accessibility.
above highest window.	Not specified.	Not specified.
above peak of roof, d 10′ away and at st 3′ above any ndow, etc.	Not specified.	Not specified.
within 10′ of any ndow to extend ve highest roof d well away from ndows.	Pipes less than 4″ in size to be enlarged to that size.	To be exposed to view where possible.
pipes into which ets on two or re floors discharge be extended ough and above f.	3″ pipe to be increased to 4″. Other sizes not specified.	To be exposed to view if practicable.
specified.	Not specified.	Exposed to view wherever practicable, or in recesses with movable covers.

pipes, and, for this reason, a comparison of the provisions of the several codes relative to this point will not be attempted here.

Supports.—By reason of the fact that in smaller buildings the four-inch soil pipe will weigh about five hundred pounds, and considerably more in buildings of more than two stories in height and for pipes of greater diameter; and for the further reason that in the case of soil and waste pipes into which both hot and cold water are discharged there will be considerable expansion and contraction, it is very essential that such stacks be well supported at the base by a firm and durable foundation, and also throughout their length, but in such a manner as not to interfere with the free vertical movement of the pipes.

Foot rests are specified in but nine of the thirty-five codes; and in nine of the codes, pipe rests are to be provided at intervals, usually at each floor. In this connection, it should be stated that many of the codes contemplate the extension of the soil or waste pipes, horizontally, for some distance above the basement floor before they are connected with the sewer, and, in these instances, provision has usually been made for supporting the horizontal and, incidentally, the vertical, pipes by brick piers or iron hangers. This method of supporting the pipes would be satisfactory if the codes provided that a brick pier be placed immediately under each vertical stack, but this is not done and therein the codes are deficient.

In six codes, the stacks are to be "Ironed to walls"; in one, "securely fastened to satisfaction of Inspector"; and in one, the "pipes are to be properly secured."

Extensions Above the Roofs.—Judging from a personal observation of very many buildings in very many localities, it would seem that the termination of soil and waste pipe stacks above the roofs is a matter to which very little importance is attached, and yet there are three important principles involved in this part of the work of house sewerage, viz.: First, that foul air shall not be discharged from the stacks at any point from which it can gain access to any window or other opening in a building; second, that the terminals of the stacks shall be so placed that there may be no interference, by the downward inclination of wind currents, with the free and continuous upward movement of air in the stacks; and third, that a terminal at some distance from a roof surface allows quicker diffusion of the drain air.

To be continued. All rights of republication reserved.

Rules for Proportioning Indirect Heating Plants

R. T. Crane, president of Crane Company, in the "Valve World" for September, 1909, gives the following rules for proportioning steam heating apparatus for indirect steam heating:

"Heating surface—One square foot of radiator surface heats 60 to 100 cubic feet of space.

"Areas of registers and hot air ducts—First floor: 1 square inch register area to 1½ feet of 1-inch pipe. Second floor: 1 square inch register area to 1½ feet of 1-inch pipe. Third floor: 1 square inch register area to 3½ feet of 1-inch pipe. Upright air pipe same size as register. Horizontal pipes 50 per cent larger.

"Area of cold air ducts—Main duct one-third less in size than the combined area of registers. Branches same as registers.

"Size of boiler—Grate surface 1 square foot to 450 feet of 1-inch pipe.

Fig. 1. First floor plan of an imaginary job of indirect steam heating, showing the determination of cubic feet in each room, apportionment of radiation for each room in accordance with rules by R. T. Crane, and the actual assignment of radiation given.

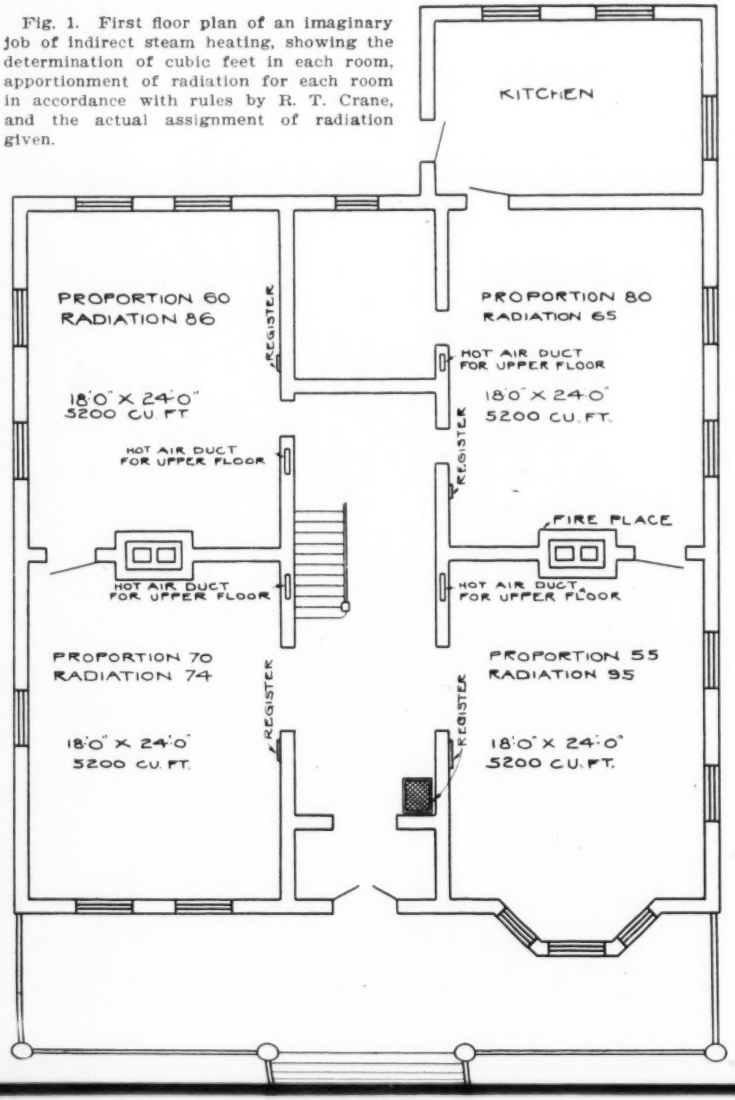
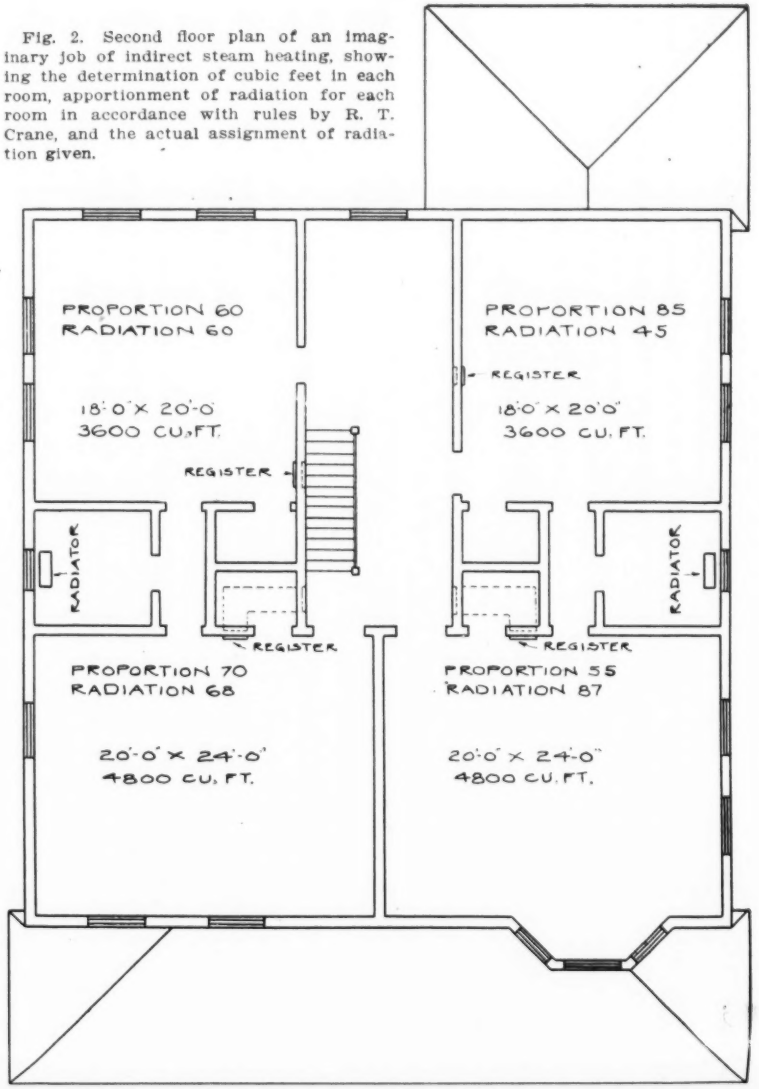


Fig. 2. Second floor plan of an imaginary job of indirect steam heating, showing the determination of cubic feet in each room, apportionment of radiation for each room in accordance with rules by R. T. Crane, and the actual assignment of radiation given.



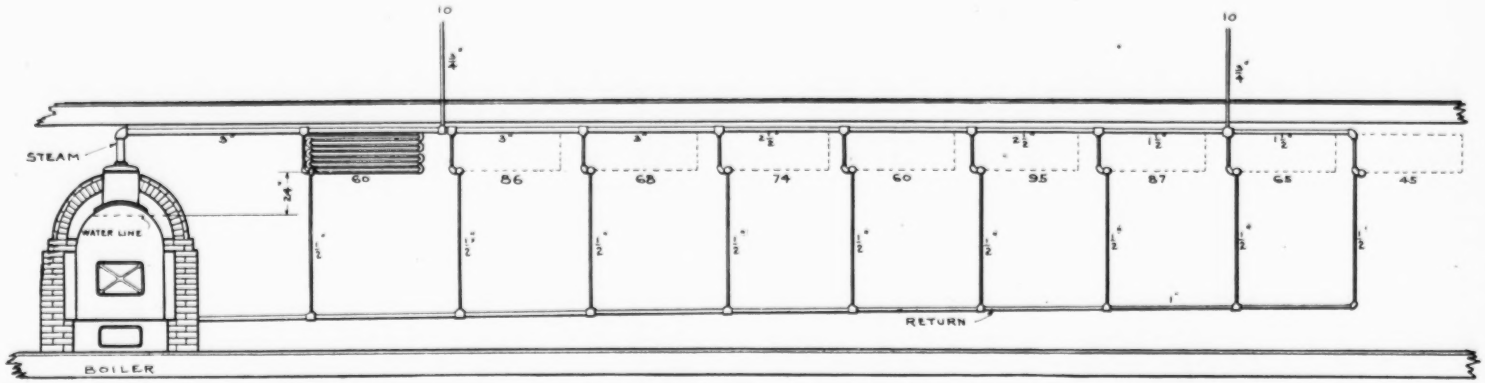


Fig. 3. Diagram showing arrangement of indirect heating coils and piping lay-out for an imaginary job of indirect steam heating after rules given by R. T. Crane.

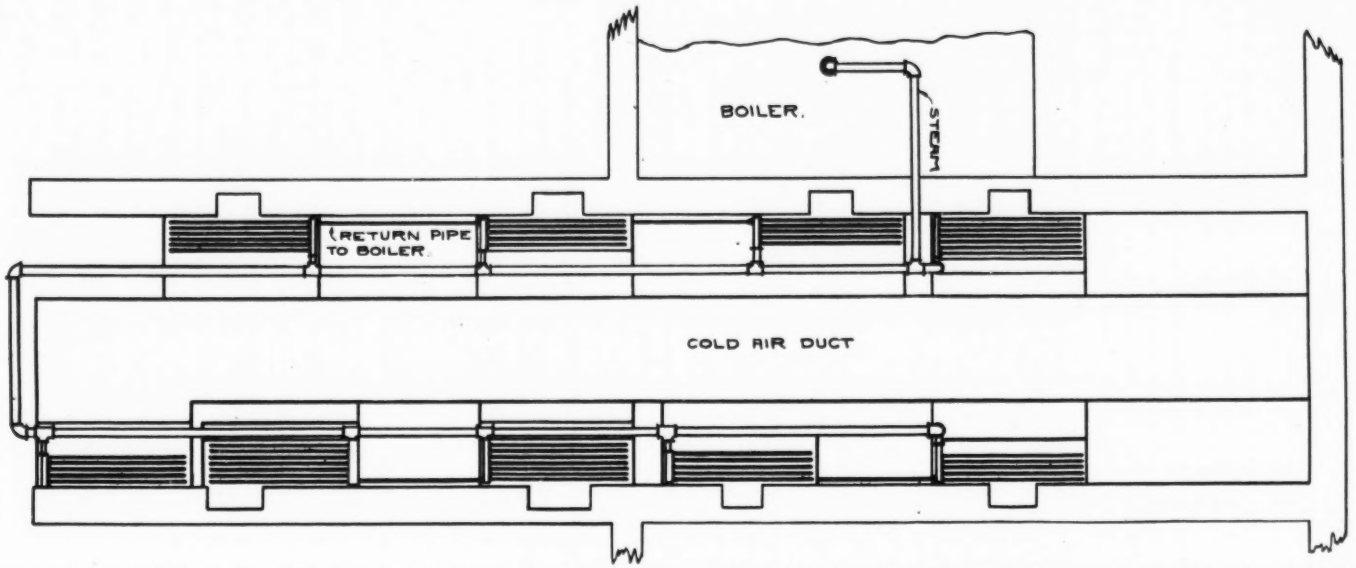


Fig. 5. Plan of indirect heating coils, air ducts and lay-out of piping in an imaginary job of indirect steam heating according to rules by R. T. Crane.

"Area of smoke flue—1 square foot of grate surface requires 20 inches of smoke flue area.

"Steam supply—1 foot of water line: 1 square inch to 100 feet of 1-inch pipe. 2 feet of water line: 1 square inch to 200 feet of 1-inch pipe. 3 feet of water line: 1 square inch to 300 feet of 1-inch pipe."

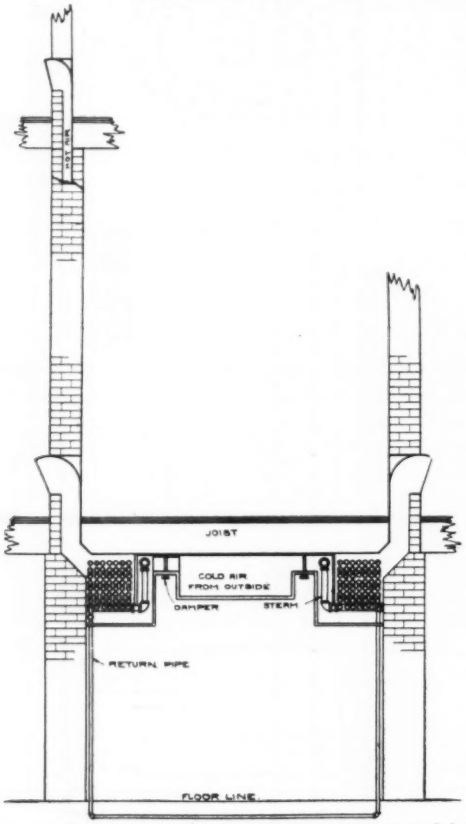


Fig. 4. Showing section of indirect air ducts and heating coils in an imaginary job of indirect steam heating by rules given by R. T. Crane.

For the use of the various illustrations we are indebted to the Editor of the "Valve World."

The Water Supply

By Phoenix.

Written expressly for "Domestic Engineering."

There are many yet with us who have carried water from the spring in the "paster" or creek to the sod house or log cabin, and in some parts of the country the "old oaken bucket" still hangs in the moss-covered well, which is inhabited by bugs, a stray frog or toad and perhaps a lively water snake thrown in just for good measure.

The sources of our supply of water for the dwelling are many and varied and may be found in springs, rivers, lakes, rain reservoirs, tanks, wells, and distilled sea water.

The farmers' home, with its spring of cool, palatable water, is known to many. The pureness of this spring water is a matter of question and depends upon several points. If a mere surface spring, depending mostly upon the rainfall for its supply, and located in a very flat country, we should be inclined to question the purity of the water. Likewise if the spring was not at quite a distance from both house and barn, there would be a chance for considerable more doubt, for obvious reasons. However, should the spring be located at a considerably higher level than the residence, and the supply of water come from a deep level the chances are that the water will be pure. If so located, and this is the case in many hilly sections of the country, the proposition of getting the water to the house and barn is an easy one, as the water may be conducted wherever desired in pipes and gravitation will do the rest.

Sometimes the reverse is the case, the residence being located upon the hill while the source of water supply is in the valley. The water must then be either pulled or pushed up the hill and **should also be filtered.**

The filtering may be more or less thoroughly accomplished by home-made articles, constructed of charcoal or brick; but such contraptions are never thoroughly safe and it would be a far more sane proceeding to use some of the reliable water filters that are now on the market as specialties. Any plumber can install one in a very short time, and the cost is very small when compared with the results obtained.

It should be apparent to any person that it is necessary to arrange for a plentiful supply of pure water, and to take means to prevent the use of water that is impure.

The waters from deep springs and artesian wells have been rendered, generally, pure by that gigantic natural filter—the earth. This is not the case, many times, with lake, river and well waters. Manufacturies, vast cities and smaller towns, almost without number, may empty their sewage into the lake or river, thus defiling its waters. When fish can not exist in a stream of water, where but a few years previous they ran in large numbers, you can bet that this particular water is unfit for drinking purposes. Yet this is the case with many a stream in the United States and the fact cannot be truthfully disputed.

I have heard the statement made that running water purifies itself every seven miles and I want to state that I do not believe it to be so.*

It is stated that water will **partially purify itself, by dilution, while flowing about twenty miles, if the stream does not flow too rapidly;** otherwise the distance will be some thirty miles or more.

In a slowly-flowing stream the various impurities have a better chance to settle. **Hence the purer water would be nearer the surface of the river, a fact which is many**

*Opposed to Phoenix's views on the self-purification of flowing streams let me quote from "The Purification of Sewage and Water," by W. J. Dibdin, F. I. C., F. C. S., London, 1903: "A few years ago it was stoutly denied that rivers had the power of purifying themselves. Then we knew practically nothing of nature's method. Now that this has been so far revealed to us, it is declared with equal force that not only are effete matters rendered innocuous, but even disease-producing microbes are themselves voraciously devoured by others of like kind, and the formerly much dreaded bacteria are—and properly so—considered amongst the best friends of man."

times **lost sight of entirely in arranging the intake of a waterworks system,** whether it be a public or a private utility.

No water should be used for domestic purposes until it has been thoroughly tested and analyzed by a reliable chemist.

You should know what manner of water you are placing in the system of yourself and family.

A shallow well is a mighty dangerous proposition.The water in it is apt to be contaminated from privy vaults, sewers which are defective, impurities which may filter down from the surface, and last, but by no means least, that abomination of inventions, the cesspool. A broken or cracked tile, or imperfect joint in a sewer line will contaminate the earth for a distance of more than twenty-five feet. The drive well, if located in a place where it will be free from contamination, is an easy method of obtaining water. It does not afford the same protection that is insured by a deep-dug well which is bricked up, and its waters should be frequently subjected to tests in order to ascertain their purity.

The water may be elevated from the valley to the house upon the hill by a windmill, hydraulic ram or pumped by machinery, or, within a limited distance. pumped by hand.

In many instances the water is stored in a tank, which is generally constructed in the attic of the residence. **This is a bum proposition from any point of view.**

Very little force is acquired from such an arrangement. You could not throw water to the peak of the house in case of fire. These tanks frequently spring a leak at the most unexpected times. I can recall several such instances where the damage caused amounted to from $25.00 to $700.00.

Again, such water is always warm and there is a certain amount of odor, unless the attic windows be left open, which it is certainly not safe nor advisable to do in the winter time. It is much more convenient and practical to have an air-tight tank located in the basement and use an air-pressure system to force the water through the pipes. Such a job has all the good points of a regular city pressure system, and with this **big advantage—there are no water rates to pay and you are boss of the system. No cranky water commissioner is coming around constantly telling you that you are using too much water in sprinkling the lawn,** when the real kick is because he is too lazy to run the pumps a little longer and keep the reservoir full.

The plumber neglects his opportunities along the lines covered by this article. There are hundreds of chances to sell pipe, filters, both large and small, pumps of different nature suited to each job, hydraulic rams, air-pressure tanks. water lifts, sprinklers, small water motors for furnishing power to run sewing machines, washing machines, churns, corn shellers and fanning mills. There are dozens and dozens of "cracker-jack specialties" that can be handled with profit and pleasure by the average plumbing shop, and yet nine out of ten will stick to the old way of doing business and refuse to touch anything out of the regular line, being satisfied, many times, to put in a complete bathroom outfit **for as small a profit as ten dollars.** The installation of a bathroom will take a week's time and if anything goes wrong, the profit has gone into the air.

Why, one could take an "old one-hoss shay," and a few water filters, patent bath-tub seats, shower bath nozzles, towel racks and cellar traps, a screw driver and a couple of small wrenches and ride around the town and country and make **ten dollars a day and play half the time at** that. We might call that the vaudeville stunt of plumbing, but **vaudeville pays and pays big.** Witness the stars of the "legitimate" who have **descended to the vaudeville** for the money, satisfaction and applause that there was in it and please absorb the hint. It is presented free along with the many other good points contained in this paper.

Questions and Answers

This department is maintained for the use of every reader of "Domestic Engineering." We solicit problems from you and will give them our best attention. In stating your questions please give all of the facts as clearly as possible and when necessary accompany your question with a correct layout of the job.

CRITICIZES OUR PLAN FOR A CONNECTION BETWEEN RANGE BOILER AND A GAS WATER HEATER OR A WATER BACK.

250.—Newark, N. J.—To the Editor of "Domestic Engineering." Sir: The sketch numbered Fig. 1 appeared in one of your recent issues as a proper method of connecting up a gas water heater to a water back and range boiler. You will pardon me if I say that **it is a very improper method. The use of valves** of any

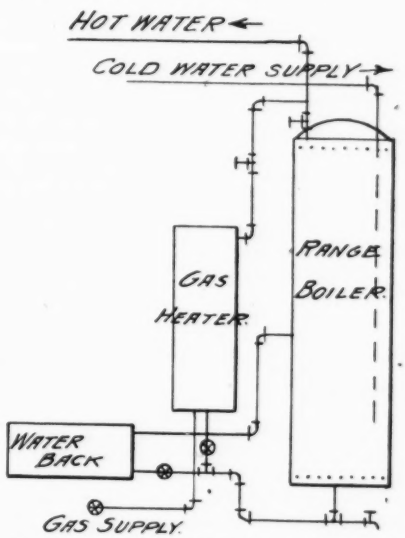
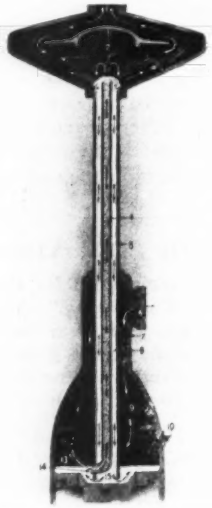


Fig. 1. The connection between a water back or a gas water heater and a range boiler which Mr. Baillet believes improper. For his reasons read his very interesting letter, and for what he believes to be the right connection see Fig. 2.

description whatever on connections between range boiler and source of heat **is very little short of criminal.**

We must always bear in mind that domestic appliances are to be used by domestics, and not by practi-


Honeywell Heat Generator in operation

WHAT ARE YOU

Are You a Manufacturer's Distributing Agent or ar

Do you figure your work in competition with others, bidding low enough to g contracts and hustling eighteen hours a day to make collections to pay for your and materials and charge your loss and gain account at the end of the year "To G in order to make it balance? Are you merely serving as a distributing agent fo manufacturer placing goods of various makes here and there for glory only as pay, or are you showing a profit on your work?

When you estimate on your hot water heating jobs, do you figure on a 1½ pipe to supply one hundred square feet of radiation and the rest of the job in pr tion? If you do, you are contributing your time and energy to the upholding antiquated practice, all because, perhaps, you are loath to break away from "th your father did" or the way your boss has taught you.

Father and the boss might have been up-to-date and money makers in their but their time is not now. No one can apply the vogue of the Nineteenth Centu any line of business today and make it show a profit.

Honeywell Hot Water Heating is Twentieth Century heating and the approved s of the present. No large unsightly pipes with this system. No extremely large radi No excessive amount of water to make temperature changes slow and unsatisfactor limit of temperature to 212° when an abundance of heat is wanted, or a cold ra here or there in the house during autumn days when the chill only is to be remov

Honeywell Systems will be found in many European countries, in every state in the Union and every province in Canad heating supplies as well as by all boiler and radiator manufacturers of both the United States and Can

THE HONEYWELL HEATING SPEC

cal, careful and conscientious engineers. The possibility of one of the valves being closed at the wrong time is very great, and this will be followed by considerable damage to the apparatus and more than once has caused explosions and loss of life.

Leaving out the valves we have, then, the method

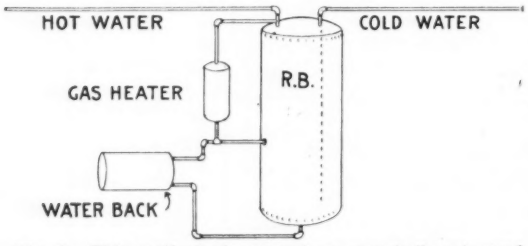


Fig. 2. This method of connecting range boilers is used by Mr. Baillet and gives perfect satisfaction.

usually followed in this kind of connection. **This in itself is very faulty.** About ten years ago the introduction of gas water heaters became general in our city. They were all installed in this manner, and we all thought it the right way. About six years ago I was called in by one of my customers to ascertain why a range water back would no longer heat the water as it had formerly done.

Two of my neighbors had been called in previously, and each in turn had cleaned out the water back and connections **with no improvement.** Obviously it would have been folly to have done the same thing. Instead, I inquired into the history of the case, and found that the depreciation in the heating capacity of the water back had first been noticed subsequently to the installation of a gas water heater which had been connected by the generally accepted method: which was given in Fig. 1, minus valves. Evidently, then, to my mind, the installation of this gas water heater was in some way or manner responsible for the changed condition. After some little experimenting and by putting in thermometers at different points, I found that the water leaving the water back at 185° came out of the faucet a short distance away at 95° when the range was used and gas water heater was not used. This led me to believe that the gas water heater furnished a means of by-passing cold water from the bottom of boiler to the top and mixing it with the hot water coming from the water back.

Acting on this deduction I rearranged the job as shown in Fig. 2, **when all trouble** ceased. By this method some hot water passes through both water back and gas water heater at all times, regardless of whether either or both are used. It is in short **hitching them up tandem.** Since then I have had occasion to change a number of such connections, and in every case the difficulty has been removed. Furthermore, when the connection is made in this manner there is not much complaint (in fact I have not heard of any) of the hot water coming from the faucet roily when gas water heater is first used after having been idle

BUSINESS FOR?

ducting Your Business Your Own Way and at a Profit.

The cutting of timbers and floors to install the small piping of the Honeywell in old buildings is entirely done away with. The Honeywell Unique Radiator Valve has solved this problem and makes it possible to turn off one or more radiators in unoccupied rooms without interfering with the circulation in the piping leading to the valves of the unused radiators.

The Honeywell automatic, thermostatic. temperature controlling device keeps the rooms at any desired temperature night and day, no matter what the weather may be, and saves many trips to the heater as well as many pounds of coal in a year.

27,000 successful installations have proven the Honeywell System of hot water heating pre-eminent and beyond cavil. This superior system of hot water heating can be installed complete for less money than the old style large pipe system which has not the advantage of the mercurial seal, improved radiator valves or temperature controlling device.

If you install the Honeywell System your contracts will show a profit and you will have satisfied customers, who are always perpetual advertisers. We will absolutely guarantee you against failure if you will let us start you right and tell you how to install your first Honeywell job which we will plan for you without charge if you are regularly engaged in the heating business and entitled to trade favors. We will be pleased to refer you to any number of Honeywell plants in your vicinity that you may investigate.

of Quebec, Canada, alone, are over 600 Honeywell installations. Honeywell equipment is handled by all leading jobbers of ded throughout Europe by the National Radiator Company of London, England. For full information address

COMPANY, = WABASH, INDIANA

Honeywell Time Clock Thermostat

for some time. Also in one case a boiler that had had the very bad habit of rumbling when hot water was drawn in basement laundry, behaved itself ever afterward. Therefore, by the light of my past experience I am satisfied that Fig. 2 is the proper and Fig. 1 the improper method of connecting up a gas water heater to a water back range boiler. As to the question of G. L., of Toledo, Ohio. The thermo valve introduced directly into the range boiler is a new one on me. It is a matter for experiment, and I hope he will let us know the result. Respectfully,

H. F. Baillet.

THE CLEVELAND CODE ON DRUM TRAPS.

253.—North Tonawanda, N. Y.—To the Editor of "Domestic Engineering." Sir: In your issue of October 12 I note in the Cleveland Plumbing Code that they give 2½ inches as the minimum depth of seal for traps. The so-called drum trap has never in my experience been called an anti-syphon or resealing trap, and I suppose under the code it would have to be vented; if it must be vented, then according to the best practice the **vent should be from the highest point and above the outlet,** which necessitates the bringing of vent up and over the floor, and this seems to be objectionable to a great many. What does the Cleveland Board require on a drum trap at bath, the vent above the floor, or does it permit venting below the floor? Very truly yours,

G. O. M.

[The Cleveland plumbing code treats drum traps thus:

"Every inlet to a drum trap shall be either through the bottom, or, if a side inlet, on a line with the bottom, and shall be either tangential or bell shaped.

"The diameter of a drum trap provided with a side inlet shall not be greater than twice the diameter of the inlet, except that for use on a bathtub or wash tray a four-inch drum trap with a one and one-half-inch inlet may be used.

"The clearance between the outer shell of a drum trap and the stand pipe forming the center outlet through the bottom of the drum, shall not exceed the diameter of the inlet nor be less than one-half the diameter of the inlet.

Every fixture trap . . . . shall be protected from siphonage and back pressure circulation shall be assured by means of a vent or back vent pipe."

So far as I am able to learn from the code there is no provision which will answer our correspondent's question.—Ed.]

OBJECTS TO MR. STARKEY'S ARTICLE ON WATER FILTERS.

Chicago, Ill.—To the Editor of "Domestic Engineering." Sir: Pardon this letter, but an article on page 117, "Domestic Engineering," October 30, on "Good Money in Selling Water Filters," shocked me.

For some years I was water analyst and consulting engineer for a large filter company, and later I was

chief engineer for another filter company. I designed and built the Stock Yards Filter Plant, filtering Bubbly creek water.

The writer of the article advocates the small faucet strainer (which he calls a filter), in spite of the fact that sanitarians the world over are fighting them.

On these miniature strainers the opportunities for germ culture are unlimited.* I have personally examined hundreds of them and found them to be disease breeders that should be condemned by law. **Clean looking water** is not **pure water** always.

Yours truly,

Ernest McCullough.

SOME KINKS ON A HEATING JOB.

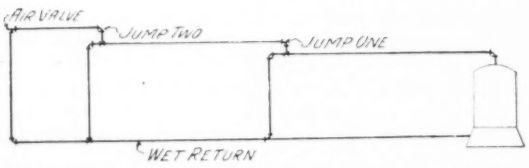
239.—Albany, N. Y.—To the Editor of "Domestic Engineering." Sir: The writer has a problem before him and turns to you for assistance, thinking perhaps that you or "Phoenix" can help me out. I have a small eight-radiator, low pressure, steam job to install in a residence, and two of the radiators are to be put on a level with boiler in basement, they can, however, be put next to ceiling. Now, I would like to know if there is anything on the market in way of special apparatus for purposes of this kind either as a trap or to return condensation to boiler. It would hardly be practical to let it go to waste from an economic point of view and it would require an automatic water feeder also.

I intend to use a regular one pipe system of piping, as the job is very compact, and would also like to know if there is any kind of wrinkle in piping that could be made use of to get better results than one gets ordinarily where there is very little difference in height between water line in boiler and end of main. Water line of boiler is 57 inches and basement ceiling is 7 feet 6 inches; length of main will not exceed 60 feet.

Would it be possible to heat the two rooms in basement with water or would the circulation be too sluggish?

I intend to make use of vacuum to heat the house to a certain extent, but will not use any of the patented systems or appliances either a good vacuum air valve or an air line with mercury seal. **M. S.**

You can use two radiators heated by water, on same level with boiler, provided the supply be tapped at the



Sketch showing how to jump the main in a practical manner, to avoid trapping of water in any steam job.

boiler at least ten inches below the water line, and you will not need to use any traps. I have drawn a little sketch showing how to jump the main and get good results, and always keep it 14 inches above the water line of the boiler. It is easy to jump the main any number of times after this manner. **Phoenix.**

*See "Engineering Work in Towns and Cities," by Ernest McCullough, 2nd edition, page 192.

WHERE TO GET INFORMATION.

243. Saginaw, Mich.—To the Editor of "Domestic Engineering." Sir: I would like to have you give me, if possible, a little information concerning figuring in the plumbing business, stating how I should start to figure on a job and what books would be needed to keep accounts in. **H. S. G.**

We publish several books, which are advertised from time to time in our columns, containing much valuable information concerning both heating and plumbing. We also have for sale complete estimate blanks for both plumbing and heating, which if used will make the keeping of books much easier. In relation to estimating we would advise a course in the reading of our books and a perusal of the articles written by "Phoenix". These have been published nearly every week for the year, 1909, in "Domestic Engineering."

L. H. DRURY, A SALESMAN FOR THE HOLLAND RADIATOR COMPANY, CHICAGO, CATCHES UP WITH A TORNADO.

I read Mr. J. E. Kinner's account of witnessing a tornado, and consider it one of the best short pieces of descriptive writing ever published. It was a strange setting for a Climax tub, amid the twisted girders and crumbled buildings.

It takes the intuitive eye of the salesman to discover something in his own line, as he sees the destructive work of the elements. A cheese merchant, viewing the debris, would have discovered a genuine Gorgonzola, and gone on his way rejoicing.

I showed this account to a friend of mine, and he said that he was from Sedalia, Mo., and that it would have to be reduced to a moving picture and projected on a canvas for him.

I don't believe that it pays to be skeptical—one should listen attentively and respectfully to any story out of the ordinary—and that makes your chances good when you have a similar tale to relate. I am willing to back up Mr. Kinner in his story, for I had a like experience myself, but with this difference—instead of being one hundred feet from the tornado, I was in the very thick of it.

I remember that I was up the air long enough to make a careful note of each and every piece of plumbing and heating material—the maker's name, the brand, etc.,—noting the superiority of one make over another, as each in its turn was subjected to the awful strain.

That I was able to be blown through space, dodge the tottering buildings, up-rooted trees and flying smokestacks, and keep my data intact was nothing short of marvelous. Alas, it was not my fate to keep free from the wreckage. When I came out of it, that is, when I was able to extricate myself from the mattress and meshes of the bedspring, I heard my wife's voice: "I watched you eat that melted cheese concoction, the lobster a la Newburg, with dill pickles and ice cream, and I knew you would pay for it."

I knew it, too, but I didn't think that I would have to pay twice. **L. H. Drury.**

WHOLESALE PLUMBING AND HEATING NEWS

Geo. E. Downe resigns from the American Radiator Company

Several new companies incorporate to manufacture plumbing and heating supplies and specialties.

MR. DOWNE RETIRES FROM THE ARCO.

Geo. E. Downe, who has been in charge of the house heating boiler business of the American Radiator Company since its inception by this concern, has tendered his resignation, to take effect immediately.

Mr. Downe, in company with his brother, Mr. Henry S. Downe, at present director of the enterprises of the American Radiator Company in Europe, organized in 1887 the National Hot Water Heater Company, for the purpose of manufacturing the well-known "Spence" hot-water heaters, acquiring the right to their manufacture and sale from Warden King & Son, of Montreal, Canada; Mr. Downe was the president and general manager of the company.

In 1892 he undertook the organization of the American Boiler Company, a corporation which acquired the right to manufacture and sell boilers, which, up to that time, had been produced by the Pierce, Butler & Pierce Manufacturing Company, of Syracuse, N. Y., The Richardson & Boynton Furnace Company, of New York, and the National Hot Water Heater Company, of Chicago and Boston, Mr. Downe assuming the position of vice-president and general manager.

After one year, and late in 1893, owing to differences of opinion within the organization as regards its policies, Mr. Downe resigned his position and retired from the company. Shortly thereafter the American Boiler Company went into liquidation.

In 1893 Mr. Downe organized the Ideal Boiler Company, which brought out the original "Ideal" boilers, and this company, under his direction, made remarkable progress in the introduction of these goods. In 1896 the American Radiator Company, having decided to take up the manufacture of house-heating boilers, in connection with their radiator business, acquired the boiler business of this company, and have since that time made phenomenal progress, Mr. Downe being in charge of the management of that department of their business up to the present time. It is generally understood that it has been a very profitable department of the company's business.

Mr. Downe has not disclosed his plans for the future, but it is believed that he will be identified in some way or other with the same line of industry, as it is incredible that with his country-wide reputation as a boiler manufacturer, and his immense personal following, he can long remain disassociated from a business in which he has always been a conspicuous success.

WILL MAKE PLUMBING SUPPLIES.

Rome Sanitary Manufacturing Company, of Rome, N. Y., has been incorporated with a capital of $5,000 to manufacture plumbers' supplies. The incorporators are DeLinton Bradt, Andrew A. Gretta Hoffman, both of Rome, N. Y.

BUILD LARGE FOUR-STORY ADDITION.

Findeisen & Kropf Mfg. Co., of Chicago, is building a four-story addition, 60x210 feet, to its plant. The new building will be used exclusively by its brass department, and it is expected to have it completed and ready for occupancy on or about December 1.

TO MANUFACTURE PLUMBING SPECIALTIES.

Warren & Dellwardt Company, of Buffalo, N. Y., has been incorporated, with a capital of $15,000, to manufacture plumbing and steamfitting specialties. The incorporators are: Horatio A. Warren, Frank M. Dellwardt and Carrie R. Dellwardt, all of Buffalo.

PHILIPS HAAS CO. IN NEW BUILDING.

The Philip Haas Company, of Dayton, Ohio, manufacturers of the Haas frost-proof water closets and

The Kennedy Valve Mfg. Co.'s Convention.

The Kennedy Valve Mfg. Co., of Elmira, N. Y., recently held its annual convention in that city. The officers of the company, the sales managers of the different territories and the office force participated in the event, which was a most pleasing success, both in a business and a social way, infusing as it did more of the personal element into the business of the concern. The above photograph was taken as a souvenir of the occasion. Reading from left to right in the front row are: D. Kennedy, Jr., William Martin, manager of Greater New York territory; W. E. Bradway, manager of the Chicago territory; M. J. Brosnan, of the New England territory; E. H. Koons, of New York State and Pennsylvania. In the second row from the front, reading from left to right, are: Chas. Miller, accountant; Clinton Wood, F. H. Fairweather, manager; D. Kennedy, Sr., president; M. E. Kennedy, vice-president and assistant treasurer; T. C. Flynn, mechanical superintendent, and the gentleman at the extreme right is the chief draftsman of the company. The third and fourth row are made up of the company's office force.

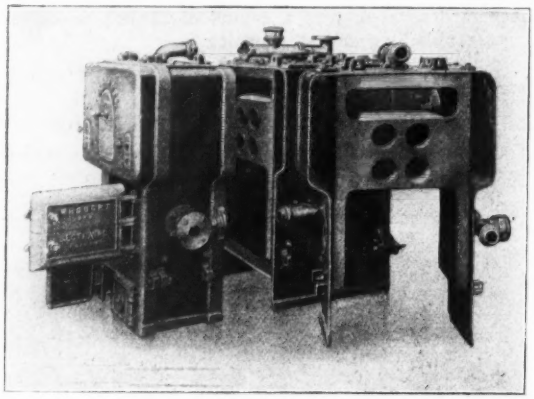
hydrometer flush valves, is now located in its new factory and office building at 123 North Webster street in that city. The removal took place this week.

LEASES LARGE BUILDING.

The National Closet Company, of Chicago, has leased a four-story building at 758-762 West Van Buren street, into which it will move about November 15th.

A WROUGHT IRON SECTIONAL BOILER MAKES ITS APPEARANCE.

In a conversation recently held between two persons interested in the heating trade, the remark was made: "How soon will it be before we will have pressed steel house heating boilers?" The answer comes sooner than expected, and it comes from England, where a sectional boiler of wrought iron has been placed on the market for heating buildings by hot



A wrought iron sectional boiler.

water. The illustration is taken from "The Plumber and Journal of Heating, Etc," of October 1, which has this to say:

"We chose this illustration for our description as it affords particulars of internal construction; otherwise the sections, when joined up, present a much more compact and attractive appearance than this illustration may convey.

"It will be noticed that there is plenty of good heating surface, while the outside of the water-ways are also heated by the flues shown. The latter is unusual with independent sectional boilers, and adds to efficacy —not only by the added surface, but by preventing loss of heat. These flues are lined with firebrick, which is not shown in the illustration. The makers claim that the boiler can be fitted up more quickly than one with cast iron sections, with less skill, less risk, and in less time. The small sizes have no tube flues, and while the middle sizes have four tubes the larger ones have nine. Each section is tested, and the assembled sections afterward tested, to 80 lbs. per sq. in., and a four years' guarantee is given. As the water surface is not exposed to the air the boiler does not require to be covered with non-conducting composition."

How long will it be before we will have a similar boiler on the American market?

SPECIALTY HOUSE MOVES.

L. H. Leand, of Brooklyn, N. Y., has moved his plumbing specialty house from 957 Broadway to 251 Throop avenue, in that city.

BACK IN THE OLD LOCALITY.

W. W. Montague & Company, the well known plumbing supply firm in San Francisco, Cal., is again doing business in the down-town section in that city, having just moved into the new three-story terra cotta front building at 557 to 563 Market street, which is practically the same location as was occupied by the company before the fire.

M'CAMBRIDGE & COOPER CO. INCORPORATED.

The McCambridge & Cooper Company, of Philadelphia, Pa., has been incorporated with a capital of $20,000 to take over and conduct the two well known concerns of McCambridge & Co. and the W. S. Cooper Brass Works. The consolidation of these two concerns took place about a month ago as told in this column at that time.

WILL MAKE PLUMBERS' WOODWORK.

The Bernstein Plumbers' Woodwork Manufacturing Company, of 449 East 10th street, New York City, has been incorporated with a capital of $5,000 to manufacture seats, tanks, wash-tray covers and other plumbers' woodwork. The incorporators are Sam I. Bernstein, Gizela Bernstein, both of 103 Avenue D, New York city; and Aaron Newman, of 102 Lewis street, New York city.

ZENITH PATENT MFG. CO. TO MAKE RANGE BOILER HEATERS.

The Zenith Patent Mfg. Company, of 202-204 Third street, South Minneapolis, Minn., which was recently organized with a capital stock of $800,000, has purchased of the Warren Heater Company, of Wellston, O., the exclusive right to manufacture the Warren range boiler heater. A temporary factory is being established at 69 South Ninth street near the corner of Nicollet avenue, which it is expected to have in operation about December 1. At this plant the range boiler heater will be made until the new factory, a large four-story structure at Midway, between Minneapolis and St. Paul, is ready for occupancy some time next year. The officers of the company are: A. Conklin, president; O. A. Thon, vice-president; J. D. Farrell, secretary; S. D. Langley, treasurer. Warren Bright, the inventor of this heater, will remain with the Zenith Company for two years or more.

ILLINOIS CHAPTER'S NOVEMBER MEETING.

The Illinois Chapter of American Society of Heating and Ventilating Engineers will hold its regular monthly meeting in the room of the Western Society of Engineers, 1734 Monadnock block, Chicago, on Monday evening, November 8. The business meeting of the Chapter opens at 7:15, and all members are requested to be present at that time. At 8:00 p. m. Paul P. Bird, Chief Smoke Inspector of the City of Chicago, will read a paper on the subject of Smoke Prevention. A cordial invitation to come and hear this paper read is extended to all members of the trade who may be interested in this subject.

CHICAGO STEAM HEATING TRADE DINNER.

To-night, Saturday, November 6, a dinner will be given, from 6:30 to 9:30, in the Gymnasium of the Illinois Athletic Club by the Chicago Master Steam Fitters' Association to the Chicago Heating and Ventilating Engineers' Association. Representatives of eighty-five of the leading heating firms of Chicago will be present on this occasion. The gentlemen who are sponsors for the dinner are: E. F. Capron, William L. Kroeschell, John J. Spear, George M. Getschow, George J. Phillips and Thomas J. Douglass, officers and members of the Chicago Master Steam Fitters' Association and also members of the Illinois Athletic Club.

DENVER TO HAVE ANOTHER PLUMBING SUPPLY HOUSE.

The Denver Pump & Plumbing Company, of Denver, Colo., has been incorporated to deal in plumbing goods. The incorporators are Arthur W. Calkins, John W. Fulton and Daniel B. Ellis. The new company has purchased two lots on Blake street, between Nineteenth and Twentieth streets, for $10,000 from Moritz Barth, on which a new building suitable for its business will be erected as soon as contracts can be let. It will be a two-story structure, built to carry two additional stories, and will cost about $35,000. Plans have also been prepared for the two additional stories which will be added as soon as the business demands it. As Denver already has four plumbing supply houses its importance as a center in this line is being recognized rapidly.

HELD OPEN HOUSE ELECTION DAY.

The Modern Science Club held open house at its club home, 125 South Elliott place, Brooklyn, N. Y., on election day, November 2, for the accommodation of its members and friends. In the evening election returns were received over the wire. The following lectures have been announced for this month: Tuesday, November 9,—Illustrated paper on "Gas Power Plants," by Godfrey M. S. Tate. Tuesday, November 16,—Illustrated paper on "Globe, Gate and Check Valves," by Russell Bannell, of the Nelson Valve Co. Tuesday, November 23,—The Use of Incandescent Lamps in Illumination," by B. F. Fisher, Jr. Tuesday, November 30,—A lecture on "Water Storage in the Adirondack Mountains," by William T. Donnelly, M. E.

G. SCHUMACHER HAS A SILVER ANNIVERSARY.

G. Schumacher, second vice-president and general manager of the Union Foundry Company, of Anniston, Ala., is having a silver anniversary of his own, it being twenty-five years ago today since he arrived in Milwaukee, Wis. Mr. Schumacher was born in Germany in 1864, educated in German public schools, and came to America in 1884. Shortly after his arrival he found employment with the Hoffmann & Billings Manufacturing Company, where he soon came under the eye of John C. Hoffmann, founder of the company, who saw in him material for development. He was placed in the soil pipe department and given a practical education in the business. In 1896 Mr. Schumacher became secretary of the Western & Southern Soil Pipe Association, and in the following year, secretary of the Hoffmann, Billings & Weller Company, at Gadsden, Ala. After the organization of the Central Foundry Company, in 1899, he was made secretary, and in 1900, second vice-president, a position he held till 1906, when he resigned and organized the Union Foundry Company at Anniston, Ala. Mr. Schumacher is regarded as one of the leading authorities on soil pipe in the country and he has been instrumental in improving the standards

G. Schumacher.
Second vice-president and general manager of the Union Foundry Company, of Anniston, Ala.

of the business . He is a Knight Templar, a member of the A. A. O. N. M. S., and affiliated with the German Reformed Church. Speaking modestly of his success, Mr. Schumacher feels that he owes it more than anything else to the opportunity afforded him by the late John C. Hoffmann, founder of the Hoffmann & Billings Manufacturing Company.

THE MUELLER ANNUAL COON HUNT.

The H. Mueller Mfg. Co., of Decatur, Ill., held its annual coon hunt on Saturday evening, October 30. Members of the firm, some of its employes and invited guests participated in the event, making a party of thirty-nine, which started from the Mueller factory at 5:30 in the evening in seven automobiles. The procession was led by Bobbie Mueller in a big White steamer carrying streamers labeled "Muellers for Coonville." Then followed Mr. Robert Mueller's big Studebaker filled with his guests, and strung out behind were the five other machines, carrying members of the Coon Club

and a number of prominent citizens who had been asked to accompany the party as guests Under a full moon the party rode to the bottoms of the Sangamon river, eight miles west of the city, and the hunt was immediately started under the leadership of C. D. Hiatt, an experienced coon hunter, and his great coon dog, Nig. Half an hour after the party got into the timber Nig had a possum treed, and this was speedily captured. Within a few minutes the deep baying of the dog betokened that he was on the trail of a coon, and a moment later, when the dog changed his tune, Mr. Hiatt announced that it was time to proceed as the dog had the coon treed. Although the party was half a mile from the dog, the old coon hunter's judgment proved to be correct. A nimble young man climbed the tree and shook Mr. Coon to the ground and then ensued a fifteen minute dog and coon fight that resulted in victory for the dog. Another possum was secured and then the autos were taken for the supper which had been in course of preparation three miles nearer town. The party reached there at 11 o'clock, and under the rays of the Hallowe'en moon, and to the strains of a mandolin orchestra, enjoyed a feast of possum, roast beef and sweet potatoes and other good things. The party returned to the city with the skin of the coon to be mounted as a trophy of the hunt, and the two possums to be fattened for a supper later on.

CHICAGO PLUMBING SUPPLY BOWLING LEAGUE.

The Chicago Plumbing Supply Bowling League held its weekly tournament on Schindler's alleys, corner of Huron street and Milwaukee avenue, Chicago, Thursday evening, October 28. The honors of the evening were distributed as follows. Federal-Huber Co. secured high average for three games at 861 2-3, and also the highest game of the league to date at 894. Mr. Helder, of Cameron, Schroth, Cameron Co.'s team, made the high individual score of 244, while Ed. Heinrich, of the Federal-Huber Co., had the highest average for three games with 189 1-3. The official score card for the evening follows:

	1st game.	2nd game.	3rd game.
L. Wolff Mfg. Co.	761	811	749
Weil Bros.	630	644	704
Federal-Huber Co.	894	864	827
Cameron Schroth Cameron Co.	814	735	825
Republic Mfg. Co.	811	728	778
Western Plumbing Supply Co.	680	716	694
Illinois Malleable Iron Co.	694	653	693
Davies Supply Co.	670	725	652

The relative standing of the teams at the end of the third tournament is as follows:

Name of Clubs.	Games Won.	Lost.	Pct.	High Game.	Total.	Avge.
Federal-Huber Co.	9	0	1000	894	7294	810
L. Wolff Mfg. Co.	9	0	1000	850	7042	771
Cameron Schroth Cameron.	6	3	667	853	7092	788
Republic Mfg. Co.	6	3	667	811	6450	716
Davies Supply Co.	4	5	444	725	5872	652
Illinois Mall. Iron Co.	2	7	222	695	5961	692
Western Plbg. Supply Co.	0	9	...	720	5923	658
Weil Bros.	0	9	...	704	5840	647

Reading, Pa.—Milton Drumheller and Paul Keppelman have formed a partnership and opened a plumbing and heating establishment at 628 North Front street.

THE METAL MARKET

THE COPPER MARKET BRISK.

New York, N. Y.—In the copper metal trade more business of good amount was reported this week as having been put through at or a little under 13 cents for electrolytic. Copper metal was again lower in London, the Standard grade falling five shillings per ton, and on the New York Metal Exchange the quotations on this grade held unchanged at the advance of ¼c per pound effected Monday. Estimates as to the showing which the copper producers' statement will make for October vary all the way from 5,000,000 pounds to 20,000,000 pounds increase.

SALE OF BESSEMER IRON A SURPRISE.

Pittsburgh, Pa.—The market for Bessemer tightened last week when a deal for the purchase of 20,000 tons of Bessemer, for delivery during December and January, was closed by the Jones & Laughlin Steel Co. The seller was the Bessemer Furnace Association. The sale took the trade by surprise, since it had been given out that the Bessemer Association had no iron to sell and was virtually sold up to April 1. The price was $19, valleys, the figure established by the 20,000-ton sale to the Republic Iron & Steel a week earlier by the Bessemer Association.

NEW YORK METAL MARKET, NOVEMBER 3.

Copper, Prime, Lake	$13.00
Copper, Electrolytic	12.75
Lead	4.40
Spelter	6.45
Antimony, Cooksons	8.37½
Straits Tin	30.65

CHICAGO IRON MARKET, NOVEMBER 4.

Lake Superior Charcoal	$19.50- $20.00
Southern, No. 2 Foundry	19.35
Northern, No. 2 Foundry	19.00

November 4, 1909.

Foundry iron was the same as the week previous.
$2 more a ton than year previous.
Copper was the same price as the month previous.
½ cents less a lb. than the year previous.

NEW YORK OLD METAL MARKET.

New York.—Dealers' buying prices are as follows:

Heavy crucibled copper	$11.75 to	$12.00
Light copper	10.00	10.37½
Uncrucibled heavy copper	11.50	11.75
Plumbers' cocks and faucets	9.00	9.50
Heavy brass	8.25	8.50
Light brass	6.25	6.50
Heavy lead	4.20	4.25
Solder joints	6.50	6.75

CHICAGO OLD METAL MARKET.

Chicago, Ill.—Dealers' buying prices are as follows:

Clean heavy copper and trolley wire	$11.75- $12.00
Light copper	10.75
Heavy yellow brass	8.50
Light brass	8.25
Heavy lead	3.90
Tea lead	3.50

PERSONAL MENTION

M. D. Helfrich and H. F. Weaver, treasurer and secretary, respectively, of the Peerless Selling Company, of Evansville, Ind., returned this week from a successful and pleasant trip to the Pacific coast.

W. P. Fairbairn, district sales manager for the Humphrey Company, of Kalamazoo, Mich., was in Chicago this week on his way home from a business trip to the Pacific Coast.

Herbert T. Sherriff, representing Nye, the Die Man, was in San Francisco the latter part of October, and spent Portola week there. He found business in his line very good there.

Walter E. Watson, who for several years has been connected with the sales department of the National Tube Company, of Pittsburgh, Pa., has accepted a position with LaBelle Iron Works, of Steubenville, O.

Thomas Brown is a new addition to the sales force of the Jay Zee Sales Company of 150 Nassau street, New York City. He will call on the trade in Greater New York, Long Island and New Jersey in the interest of the Jay Zee portable vise bench.

It is rumored in New York that N. G. Rost, representative of the Loew Mfg. Co., of Cleveland, Ohio, is the happiest man in the city, all on account of a ceremony which is said to have been performed last week somewhere in New Jersey. Verification was sought in vain, as Nick could not be found at his favorite haunts, which fact, his friends say, only lends weight to the rumor.

ASSOCIATION NEWS

CLEVELAND PLUMBERS HAVE SOCIAL EVENING.

Cleveland, O.—The Cleveland Master Plumbers' Club, which was recently organized, held its first social event on Friday evening, October 30. The affair was well attended by members and their wives and a most pleasant evening was the result.

MANHATTAN PLUMBERS PREPARE FOR GREAT BALL.

New York, N. Y.—The ball committee of the Manhattan Association of Master Plumbers is evidently on the job. This week a three page folder has been mailed from headquarters containing all the necessary information about the affair with a modest statement that the December 1 affair will be a record "buster."

ROCKFORD MASTER PLUMBERS INCORPORATE.

Rockford, Ill.—Rockford Master Plumbers' Supply Association, of this city, was incorporated under the laws of the state of Illinois, on Friday, October 29, with a capital of $7,000, to conduct a general plumbing, jobbing and

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M. J. Johnson, W. F. McGuire and M. V. Shively.

Bay City, Mich.—W. F. Wilson, successor to Wilson & Wanless, has secured the contract for heating A. Bovine's new large brick building at Pinconning.

PLUMBING INSPECTION

PRESIDENT CHAS. B. BALL ISSUES CALL FOR FIFTH ANNUAL MEETING OF THE A. S. I. P. & S. E.

Chicago, Ill.—The American Society of Inspectors of Plumbing and Sanitary Engineers will hold its fifth annual meeting in Trenton, N. J., January 20, 21 and 22, 1910, according to the official call just issued by President Chas. B. Ball, Chief Sanitary Inspector of the Department of Health of this city. In his call for the convention President Ball states that "preparations already made assure some interesting papers and discussions for the occasion. The convention sessions will have a close relation to the sanitary pottery manufacture conducted in that city and the appointment of a committee by the Potteries Selling Company to co-operate with our committee will result in exceptional facilities to visit the factories." Members of the society are urged to make every effort to be present, and other plumbing inspectors and sanitary engineers are cordially invited to attend this meeting. The society's Committee on Convention Arrangements consists of the following: Chairman, A. M. Maddock, Jr., Trenton, N. J.; Geo. W. Feaster, inspector of plumbing, Trenton, N. J.; J. J. Cosgrove, sanitary engineer, Philadelphia; Grafton D. Dorsey, sanitary engineer, New York City; Patrick J. Madden, sanitary engineer, Chicago. The Potteries Committee on Arrangements consists of Edward C. Stover, chairman; A. M. Maddock, Jr., and W. B. Maddock.

ANNUAL REVIEW OF INSPECTION FORCE.

Chicago, Ill.—The first annual review of the entire inspection force of the Department of Health in this city was held Thursday of this week. The whole force consists of seventy-five men and women, who all attended the event together with the chiefs of the different departments. The uniform commissioner of the departments acted as reviewer or master of ceremonies. Chief Sanitary Inspector Chas. B. Ball's force made a most pleasing impression on this parade occasion.

REAPPOINTED PLUMBING INSPECTOR.

Macon, Ga.—Francis X. Daly has been reappointed as plumbing inspector by a unanimous vote of the new board of aldermen. Inspector Daly has been at the head of the plumbing inspection department for many years and he enjoys the confidence and good will of all with whom he has been thrown in contact. Two years ago he revised the plumbing regulations of the city and brought them up to date

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New Orleans, La.—The Tax Payers' Mutual Plumbing Company, which was organized last week in this city, has been incorporated with a capital of $100,000. The officers of the new company are Mathew Goslinski, president; Donald H. Mitchell, secretary-treasurer; Peter Weisz, vice-president. The company has opened offices at 313-314 Macheca building, and is ready for business. It is said to be well equipped with skilled workmen as well as conservative buyers.

PLUMBING LEGISLATION

PLAN TO REVISE PLUMBING ORDINANCE.

Omaha, Nebr.—The plumbing ordinance in this city provides that permits shall be taken out for all work where there are sewer connections, but many cases have been discovered recently where property owners have had plumbing done and then postponed the work of connecting their systems with the sewers until later on. In this way they have evaded the ordinane requiring plumbing permits and the subsequent plumbing inspection. To prevent this abuse it is now planned to have the plumbing ordinance revised.

DO NOT LIKE OUTSIDE COMPETITION.

Riverside, Cal.—A number of the master plumbers in this city are making an effort to have the plumbing ordinance amended in such a way that it will protect them from outside competition as effectually as other lines of business are protected. It is urged that the ordinance be amended to prohibit contractors from doing plumbing in the city without carrying a stock of goods in an established place of business.

OBITUARY

Murray McMillin, Sr., for many years a master plumber in Marietta, Ohio, passed on at Cincinnati, Ohio, Wednesday morning, October 27th, while on his way to Marietta, Ohio, from Kissimmee, Fla., where he had been seriously ill for a week. Mr. McMillin was in his 68th year and a veteran of the civil war, and he conducted a plumbing establishment in Marietta for many years until he became superintendent of the Marietta Gas Company, a position he held until he was appointed superintendent of the Marietta Water Works, from which he resigned in 1906 to become clerk of the Marietta Board of Education. He is survived by two sons and two daughters.

BLANK FOR REPORT

—OF—

Awards of Heating or Plumbing Contracts

(Cut out, fill in and mail promptly)

DOMESTIC ENGINEERING
Chicago

We have been awarded the

Plumbing Contract_____

Heating Contract_____

Kind of Building_____

Amount of Contract_____

Owner's Name_____

Architect's Name_____

Address_____

Our Own Name_____

Address_____

NOTES FROM THE WEST

Kansas City, Mo.—Jas. J. Magill, of 907 Wyandotte street, has secured the contract for the plumbing of the J. C. Gales building in this city.

Fremont, Neb.—Halloway & Fowler have been awarded the contract for the installation of a new steam heating plant at the county farm. The contract amounts to $769.

St. Louis, Mo.—Ben J. Holland has opened a plumbing establishment at 4239 St. Francisco avenue and would like to receive catalogues from jobbers and manufacturers of plumbing goods.

Kansas City, Mo.—Lewis & Kitchen Company has secured the contract for the installation of plumbing, heating and ventilating systems in the new Longfellow school building at Coffeyville, Kansas. The consideration is $4,506.

THE GREAT NORTHWEST

St. Nicholas, Minn.—Henry J. Wartman has secured the contract for the installation of steam heating plant in the St. Nicholas church. The consideration is $1,381.60.

Webster, S. Dak.—The Webster Hardware Company has been awarded the contract for the installation of a new heating plant in the Greenville Catholic Church.

Fond du Lac, Wis.—C. E. Boege has purchased a half interest in the plumbing business of H. J. Hyde, at 37 North Main street. Mr. Boege was formerly in the milk business.

Eau Claire, Wis.—A. Burkart, of 320 Barland street, has been awarded the contract for the plumbing and heating in the Benedictine Sisters' home in this city. The consideration is $1,800.

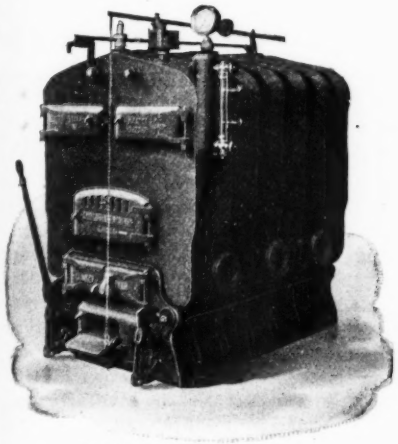
Racine, Wis.—The Thomas Heating Company, Schulz building, Wisconsin street, has been awarded the contract for the installation of a heating and ventilating plant in the Northern Michigan Insane Asylum, at Traverse City, Mich. The contract price amounts to $32,500.

Brooklyn, N. Y.—The Louis E. Quick Company has been incorporated, with a capital of $10,000, to conduct a plumbing and gasfitting business. The incorporators are Louis E. Quick, L. M. Quick and Charles A. Thompson, all of Brooklyn.

Long Beach, N. Y.—Alberta Plumbing Company, of this city, has been incorporated with a capital of $5,000. The incorporators are Howard V. Snow, of Rockville Centre, N. Y.; Thomas Le Boutillier, of Westbury, N. Y.; Henry W. Goddard, of 342 West 85th street, New York City.

Unified Heating.

"In unity there is strength" and in the combination of two such sturdy heating forces as IDEAL Boilers and AMERICAN Radiators there is the unity of efficiency, economy and durability for one end, the production of good heating results through fitting and worthy mediums.



IDEAL Sectional Steam Boiler.

Either IDEAL Boilers or AMERICAN Radiators express thorough heating efficiency in its best terms yet in the unity of both there is superiority unqualified.

AMERICAN RADIATORS & IDEAL BOILERS

A Heating Outfit is More Efficient with NORWALL and SYLPHON SPECIALTIES

AMERICAN RADIATOR COMPANY

General Offices, 282-286 Michigan Ave., Chicago.

New York	Cincinnati	Cleveland	Atlanta	Brantford, Ont.	Denver
Philadelphia	Boston	Milwaukee	Minneapolis	Seattle	St. Louis
Pittsburg	Buffalo	Indianapolis	Kansas City	Omaha	San Francisco
Washington					

GOOD BUSINESS CHANCES FOR GOOD MEN

This department is for the benefit of our readers. If you want to go into business please write us the kind of place you want and the character of the business you are interested in, and we will publish in this column a request for information which may help you to get what you want. If you want to sell your business, please write us a description of your town, the possibilities for business, the stock on hand, and reasons for selling, and we will do our best to find a purchaser for you.

In a prosperous town in the middle west there is a good plumbing and heating business that could be sold after January 1st. About $8,000 worth of work is on hand now, about half finished, which the owner would like to complete. He does from fifteen to eighteen thousand dollars' worth of work a year and could do more if he tried; employs one first class plumber and helper and one first class steamfitter and helper, and one laborer, and is overrun with work at good prices. He carries two thousand dollars' worth of tools and stock and will sell for three thousand. This is the best town for its size in this business in this state, and the population is about eight thousand, and no other large towns within thirty miles; two steam roads and an interurban pass through the town; he has installed fifteen steam and water jobs this season and prospects are just as good for the next season. The reason he wants to sell is that he thinks he is getting too old to hustle. If you desire further information about this, please write to "Domestic Engineering," 209-213 N. Jefferson street, Chicago, and refer to "Business Chance" No. 56.

THE SHOP BOOKSHELF

Being a brief mention of late publications which are worthy of special notice because of their unusual interest to the trade. They should be on "The Shop Bookshelf" in every plumbing and steam fitting establishment for instant reference. A free copy of any publication referred to under this heading may usually be had by mentioning "Domestic Engineering" when you write.

From the H. B. Sackett Screen & Chute Co., Chicago, Ill.: A 6¾"x10" carefully prepared catalogue of sixty-four pages describing with numerous illustrations its line of mine, ore and industrial cars, elevator screens, buckets, etc.

From the Genuine Bangor Slate Company, Dome building, Easton, Pa.: "Roof Salad," a 3½"x6¼" booklet of twelve pages. To use the words of the author, this unique little book is "a refreshing dish of more or less hefty roof facts, with a dressing of more or less zesty fiction."

From the Goodall Mfg. Co., Stoneham, Mass.: A 4¾"x8" booklet of twenty pages describing with many illustrations the Goodall Rigid Pipe Union; Competition Union; Automatic Union and Valve; and Combination Drawing-In Box and Conduit Union. The booklet is very complete, giving prices and full particulars.

From The Sims Company, Erie, Pa.: A 6"x9" booklet of series of five bulletins bound together, descriptive of the Sims power plant appliances, including water heaters and purifiers, exhaust heads, boiler compound feeders, hot water generators, sugar juice heaters, steam separators, water softeners, oil separators and filters, etc.

From the David Craig Company, 70 Broad street, Boston, Mass.: A 5"x9" booklet of 48 pages descriptive of the Craig sanitary line and of the several Craig inventions, the advantages of which are well described and illustrated. Considerable space is given to showing the profit to be made by those who desire to become stockholders in the Craig Company.

From the Chicago Heater and Supply Company, 56 Dearborn street, Chicago: "The Perfecto Fitters Catalog," a 4¼"x4½" booklet of 132 pages, bound in flexible cloth covers. This handy pocket edition illustrates and describes most clearly practically every article necessary for use in installing a plant for heating by steam, hot water or warm air, with prices. The information is intended to be complete enough to enable the fitter with this book to figure accurately on any regular job.

From Findeisen & Kropf Mfg. Co., Twenty-first and Rockwell streets, Chicago, Ill.: A 7¾"x10¾" catalogue of Plumbers' Sanitary Woodwork, 160 pages beautifully and substantially bound in heavy double cover stock. One of the features of the book is the reproduction in natural colors of the various woods, mahogany, cherry, birch and oak in the different finishes used in the manuafacture of seats and tanks. There are nearly one hundred half-tone illustrations in the book of tanks, seats and other sanitary woodwork, manufactured by the company.

From Warren Webster & Company, Camden, N. J.: A sixteen page booklet 4½"x6", entitled "The Selection of a Heating System." "In the minds of many people," the writer starts out by saying, "any collection of pipes, valves and fittings, with a boiler at one end and few radiators at the other constitutes a heating system." After disposing of this fallacious conception the booklet describes the Webster Modulation System of heating. The booklet is exceptionally well arranged and artistically gotten up, and it will no doubt prove an interesting addition to the trade library of heating engineers and contractors.

From the Wisconsin Engine Co., Corliss, Wis.: Bulletin C-4, an 8"x10" booklet of twenty-four pages, bound in heavy cover stock. The booklet is printed on the finest coated paper and contains nearly fifty excellent half-tone illustrations of Corliss engines, engine parts and views of the company's shops. The reading matter is a model of clearness and logical arrangement, describing as it does many of the intricacies of engine construction in a highly interesting and intelligible way. This bulletin is the first of a series which will be issued from time to time and distributed to those directly or indirectly interested in power plants and steam engineering, who express a desire to receive the bulletins.

From **the National Vacuum Heating Company,** Marshalltown, Iowa: Catalogue "C," a beautifully printed and well illustrated booklet of forty pages, size 6½"x9½", descriptive of the Dunham Vacuo-Vapor System of Heating. The booklet begins by taking up the problem of heating in general, the importance of a well considered choice of a heating plant paying special attention to the system which the National Company is interested in. The construction and operation of the Dunham radiator trap and the Automatic vacuum air valve are also explained with the aid of excellent illustrations. In the back of the book are shown sixteen full page illustrations of important buildings in which the Dunham Vacuo-Vapor system of heating is in successful operation.

From **The Powers Regulator Company,** 42 Dearborn street, Chicago: A 16-page, 6"x9" catalogue of the Powers heat regulators and other temperature controlling specialties. This booklet is exceptionally well written, the numerous illustrations are good and help in giving the very clear idea of the construction, automatic operation and various purposes of the several devices that one gets from reading the book. At the start attention is called to the profit there is for the steam-fitter and plumber in the sale and installation of these appliances. "Public taste," the writer goes on to say, "is being constantly educated in the direction of buying the better article, and the retailer who will recognize this fact and cater to it, will do the most satisfactory business from a profitable, as well as other standpoints." A strong point is made of the fact that the company spends a large amount of money each year in advertising direct to the consumer, which, it is pointed out, is educating the public to the value of heat regulation and consequently increasing the demand for the Powers regulators.

WITH THE MAKERS

The Dayton Vent Fitting.

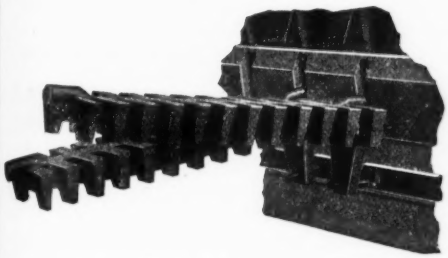
Among the good little things that has received wide acceptance by the plumbing trade is the Dayton vent fitting made by the Dayton Supply Co., of Dayton, Ohio. With the abandonment, a few years ago, of the closed fixtures for so-called "open work," the thought

The Dayton No. 31 waste and vent for iron pipe.

of the practical man was to have as few pipes exposed as possible, so long as this could be done without loss of accessibility to concealed work. The manufacturer of this vent fitting points out that by setting it behind the wall with a slip joint, or union joint as preferred on the outside, everything is easy to reach, costs less

CAPITOL BOILERS AND RADIATORS

Just One of the Fine Points



The method illustrated here of holding grate bars in the cored base and the simplified connections is used on all Improved Capitol Boilers. It is truly "one of the fine points" for which Capitol Boilers are noted.

Features like these are found throughout the entire Capitol Line. They make the installation easier for you, and assure satisfaction to the owner.

Have you our catalog and descriptive booklet?

United States Heater Company

General Offices and Works: Fort St. and Campbell Ave., DETROIT, MICH.

BRANCHES:

NEW YORK	129 Worth St.
CHICAGO	34 Dearborn St.
OMAHA	916 Farnam St.
DETROIT	139 Jefferson Ave.
KANSAS CITY OFFICE	413 N. Y. Life Bld.

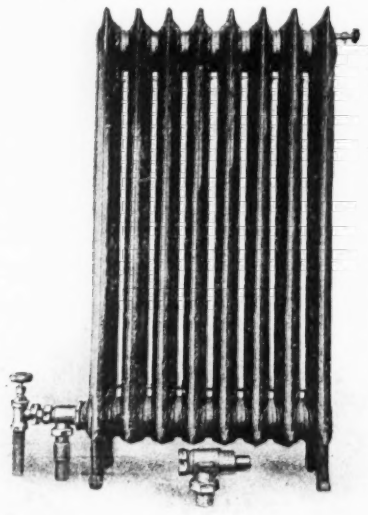
SALES AGENCIES:

MINNEAPOLIS, MINN., Plumbing & S. F. Supplies Co.
ST. LOUIS, MO., L. M. Rumsey Manufacturing Co.
DENVER, COLO., Kellogg & Stokes Stove Co.
DULUTH, MINN., Duluth Plumbing Supply Co.

to put in, looks better and is more sanitary than the old ways. The Dayton fitting is made in forty-eight styles to cover almost any possible installation. Our readers are requested to mention this article when writing for its booklet on vent fittings.

The Belknap Hot Water Circulating Coupling.

Where the Belknap circulating coupling is used it is only necessary to extend the risers directly through the floor to the valve and coupling, which avoids taking up flooring and cutting joists in order to extend the return pipe to the return end of the radiator. The result is a saving of four joints and three angles, besides the saving in material and labor over the double



How the Belknap hot water coupling is attached.

end way of connecting radiators. The connection is made by screwing this coupling into the end of the radiator, the hot water valve being screwed into the coupling (see illustration). The coupling is so constructed that the hot water passes in through an inner tube, and the cooler return water passes out to the return pipe through an outer opening in the coupling. In addition to these features, the advantages claimed for this coupling are: All pipes are above the floor, thus eliminating the possibility of leaks from concealed connections, also there is no opportunity for pockets to form. Should more radiation be required, it is only necessary to add the extra sections without disconnecting any fittings. This coupling is manufactured by The Belknap Mfg. Co., of Bridgeport, Conn., to whom inquiries, mentioning this article, should be addressed for complete information.

Richmond, Va.—The Field Plumbing and Heating Company, of this city, has been incorporated with a capital of $10,000 to conduct a plumbing and heating business. The officers of the company are B. P. Field, president; H. A. Morrison, vice-president; N. T. Cooke, treasurer; F. B. Page, secretary; all of this city.

PATENTS

936,311. **Stock and Disc.** Jacob E. Dundore, Wilmerding, Pa.

935,469. **Slip-Joint for Pipes.** Charles D. Milne, Cattaraugus, N. Y., assignor to Century Brass Manufacturing Company, Cattaraugus, N. Y., a Corporation of New York.

937,088. **Valve.** Franklin M. Patterson, Philadelphia, Pa., assignor, by direct and mesne assignments, to Patterson-Allen Engineering Company, a corporation of New York.

937,096. **Blow-Off Valve.** John V. Schmid, Philadelphia, Pa., assignor to the Simplex Engineering Company, Philadelphia, Pa, .a corporation of Pennsylvania.

937,164. **Sanitary Seat for Water-Closets.** John W. McAuliffe,Chicago, Ill.

937,380. **Radiator.** John A. Miller, Tarrytown, N. Y.

937,404. **Expansion-Reamer.** Louis C. Woerner, Westend, near Berlin, Germany, assignor to Loewe & Company, Berlin, Germany.

937,458. **Device for Removing Obstacles from Drain-Pipes.** James A. Mulherin, St. Louis, Mo.

937,476. **Bath-Tub Attachment.** Edward M. Shipp, Bremerton, Wash.

937,505. **Steam-Trap.** Michael J. Boyle, New York, N. Y., assignor of one-half to William Sillman, New York, N. Y.

937,509. **Lavatory-Fixture.** Donald A. Carpenter, Mansfield, Ohio.

937,525. **Attachment for Water-Closet Seats.** George K. Hashim, New York, N. Y.

937,533. **Pipe-Coupling.** George E. Kelly and George F. Royer, Wilkes-Barre, Pa., assignors to The Kelly-Arnold Manufacturing Company, Wilkes-Barre, Pa., a corporation of Pennsylvania.

937,541. **Faucet.** William F. Oden, Ophir, Utah, assignor of one-half to Edward W. Clark, Ophir, Utah.

937,597. **Safety-Valve for Steam, Compressed Air, or Gas.** George Grussendorf, Hanover, Germany.

937,619. **Flush-Valve-Operating Means for Closets.** Leo Links and Ralph E. Irwin, Harrisburg, Pa.

937,622. **Blow-Torch and Soldering-Iron.** Frank J. Mann, New York, N. Y., assignor to Frank J. Mann Tool and Appliance Company, New York, N. Y., a corporation of New York.

937,624. **Auxiliary Heating Device for Furnaces.** Edwin T. Marsh, Rochester, N. Y.

937,629. **Self-Closing Water-Cock with Device to Prevent Bursting by Frost.** Georg Müller, Schwäbisch-Gmünd, Germany.

937,678. **Stop and Waste Cock or Valve.** Joseph H. Glauber, Cleveland, Ohio.

937,686. **Pressure-Regulating Apparatus.** Thomas G. Mouat, Bratenahl, Ohio.

937,689. **Heating System.** Andrew G. Paul, Boston, Mass.

937,728. **Flow-Regulating Device.** Grace A. Twiford, Pomona, Cal, administratrix of Nicholas S. Twiford, deceased.

936,561. **Ventilated Water-Closet.** John K. Pennington, Los Angeles, Cal.